CDX-4170R

SERVICE MANUAL

AEP Model
UK Model

Model Name Using Similar Mechanism	NEW
CD Drive Mechanism Type	MG-363X-121
Optical Pick-up Name	KSS-520A

SPECIFICATIONS

CD player section

System	Compact disc digital audio system
Signal-to-noise ratio	90 dB
Frequency response	10 - 20,000 Hz
Wow and flutter	Below measurable limit

Tuner section

FM

Tuning range	87.5 - 108 MHz
Aerial terminal	External aerial connector
Intermediate frequency	10.7 MHz
Usable sensitivity	8 dBf
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	60 dB (stereo), 65 dB (mono)
Harmonic distortion at 1 kHz	0.8% (stereo), 0.5% (mono)
Separation	35 dB at 1 kHz
Frequency response	30 - 15,000 Hz
Capture ratio	2 dB

MW/LW

Tuning range	MW : 531 - 1,602 kHz LW : 153 - 281 kHz
Aerial terminal	External aerial connector
Intermediate frequency	10.71 MHz / 450 kHz
Sensitivity	MW : 30 μV LW : 35 μV

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4 - 8 ohms
Maximum power output	35 W × 4 (at 4 ohms)

– Continued on next page –

FM/MW/LW COMPACT DISC PLAYER

MICROFILM

SONY®

General

Outputs	Power aerial relay control lead Power amplifier control lead
Tone controls	Bass ± 8 dB at 100 Hz Treble ± 8 dB at 10 kHz
Power requirements	12 V DC car battery (negative ground)
Dimensions	Approx. 188 × 58 × 175 mm (w/h/d)
Mounting dimensions	Approx. 183 × 53 × 160 mm (w/h/d)
Mass	Approx. 1.25 kg
Supplied accessories	Parts for installation and connections (1 set) Front panel case (1)

Design and specifications are subject to change without notice.

SERVICE NOTE

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Notes on Chip Component Replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

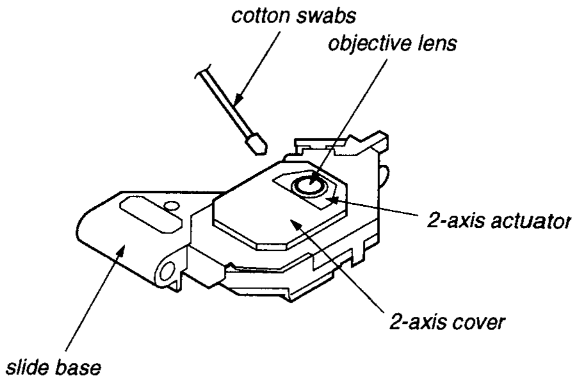
NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

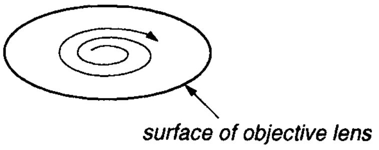
NOTES ON PICK-UP FLEXIBLE BOARD

The pick-up flexible board in this set is secured to the optical pick-up with an adhesive tape. Once the tape is removed, an adhering force becomes weak, and it cannot be reused.
Therefore, if the optical pick-up is replaced, replace also the pick-up flexible board with a new one.

NOTES ON CLEANING THE OBJECTIVE LENS



Apply CD lens cleaner B-4 (Part No.:J-2501-000-A) to cotton swabs (narrow type) (Part No.:J-2501-023-A) to be lightly wet. Use a force (about 5 g) to make the objective lens in contact with the bottom lightly, and clean the lens by spirals as following below.
Replace the cotton swab and repeat this cleaning two or three times.



Notes:

Do not force to push the objective lens. Otherwise, the plate spring supporting the objective lens will be bent, causing a deteriorated RF waveform.
Never touch anything other than the objective lens. Otherwise, a significant deterioration occurs in the RF waveform.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

TABLE OF CONTENTS

1. GENERAL

Location of Controls 4
Getting Started 4
CD Player 5
Radio 6
RDS 6
Other Functions 9
Additional Information 10
Connections 12

2. DISASSEMBLY

2-1. Cover Assy 14
2-2. Front Panel Assy 14
2-3. Sub Panel 15
2-4. CD Mechanism Block 15
2-5. Main Board 16
2-6. Heat Sink 16
2-7. Chassis (T) Sub Assy 17
2-8. Lever Assy 17
2-9. Servo Board 18
2-10. Roller Assy 18
2-11. Chassis (OP) (O/S) Assy 19
2-12. Optical Pick-up Block 19

3. ELECTRICAL ADJUSTMENTS

Tuner Section 20
CD Section 23

4. DIAGRAMS

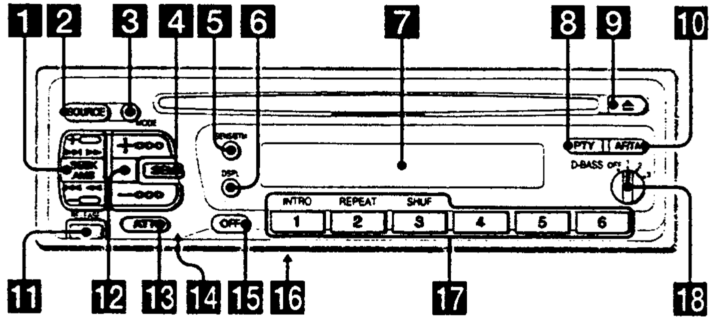
4-1. IC Pin Description 24
4-2. Block Diagram 26
4-3. Circuit Boards Location 28
4-4. Printed Wiring Boards –CD Mechanism Section– 28
4-5. Schematic Diagram –CD Mechanism Section– 31
4-6. Printed Wiring Boards –Main Section– 34
4-7. Schematic Diagram –Main Section– 37
4-8. Printed Wiring Boards –Display Section– 42
4-9. Schematic Diagram –Display Section– 44

5. EXPLODED VIEWS

5-1. Chassis Section 51
5-2. Front Panel Section 52
5-3. CD Mechanism Section (1) 53
5-4. CD Mechanism Section (2) 54
5-5. CD Mechanism Section (3) 55

6. ELECTRICAL PARTS LIST 56

Location of controls



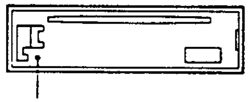
Refer to the pages for details.

1. **SEEK/AMS (seek/Automatic Music Sensor/manual search) button 7, 8, 9, 10, 13**
2. **SOURCE (source select) button 6, 8**
3. **MODE (band select) button 8**
4. **SEL (control mode select) button 6, 11, 13, 15, 16**
5. **SENS/BTM (sensitivity adjust/Best tuning memory) button 8, 9, 12**
6. **DSPL (display mode change/time set) button 6, 9**
7. **Display window**
8. **PTY (programme type) button 13**
9. **≜ (eject) button 6**
10. **AF/TA (alternative frequency/traffic announcement) button 10, 11, 12**
11. **RELEASE (front panel release) button 5, 17**
12. **⊕ ⊖ (volume/bass/treble/balance/fader control) buttons 6, 15**
13. **ATT button 15**
14. **Reset button (located on the front side of the unit hidden by the front panel) 5**
15. **OFF button 5, 6**
16. **POWER SELECT switch (located on the bottom of the unit)**
    See "POWER SELECT Switch" in the Installation / Connections manual.
17. **During radio reception:**
    Number buttons 8, 9, 10, 12
    During CD playback:
    ① INTRO button 7
    ② REPEAT button 7
    ③ SHUF button 7
18. **D-BASS dial 16**

Getting Started

Resetting the unit

Before operating the unit for the first time or after replacing the car battery, you must reset the unit.
Press the reset button with a pointed object, such as a ballpoint pen.



Reset button

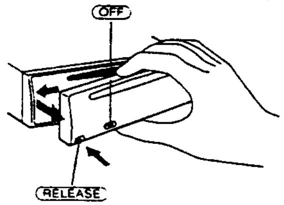
Notes
- *Pressing the reset button will erase all the memorized programme and memory functions.*
- *When you connect the power supply cord to the unit or reset the unit, wait for about 10 seconds before you insert a disc. Do not insert a disc within these 10 seconds; otherwise, the unit will not be reset, and you will have to press the reset button again.*

Detaching the front panel

You can detach the front panel of this unit to prevent the unit from being stolen.

1 **Press (OFF).**

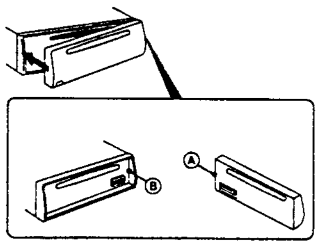
2 **Press (RELEASE) to open up the front panel. Then slide the front panel a little to the left, and pull it off towards you.**



Notes
- *Be sure not to drop the panel when detaching it from the unit.*
- *If you press (RELEASE) to detach the panel while the unit is still on, the unit will turn off automatically to prevent the speakers from being damaged.*
- *When you carry the front panel with you, put it in the supplied front panel case.*

Attaching the front panel

Align part Ⓐ of the front panel to part Ⓑ of the unit as illustrated, and push until it clicks.



Notes
- *Be sure not to attach the front panel upside down.*
- *Do not press the front panel hard against the unit when attaching it. Press it lightly against the unit.*
- *Do not press hard or put excessive pressure on the display window of the front panel.*
- *Do not expose the front panel to direct sunlight, heat sources such as hot air ducts, and do not leave it in a humid place. Never leave it on the dashboard of a car parked in direct sunlight where there may be a considerable rise in temperature.*

Caution alarm

If you turn the ignition key switch to the OFF position without removing the front panel, the caution alarm will beep for a few seconds (only when the POWER SELECT switch is set to the Ⓐ position, and connecting an optional power amplifier to LINE OUT).

SECTION 1
GENERAL

This section extracted from instruction manual.

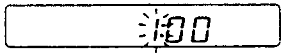
Setting the clock

The clock has a 24-hour digital indication.

Example: Set the clock to 10:08

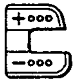
1 Press (OFF) or (DSPL) during operation.

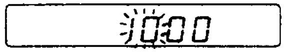
2 Press (DSPL) for more than two seconds.



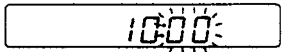
The hour digit flashes.

❶ Set the hour digits.


to go forward
to go back

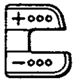


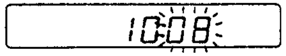
❷ Press (SEL) momentarily.



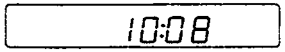
The minute digits flash.

❸ Set the minute digits.


to go forward
to go back



3 Press (DSPL) momentarily.



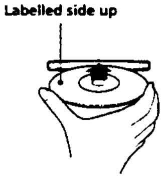
The clock is activated.

Note
If the POWER SELECT switch on the bottom of the unit is set to the Ⓑ position, the clock cannot be set unless the power is turned on. Set the clock after you have turned on the radio, or started CD playback.

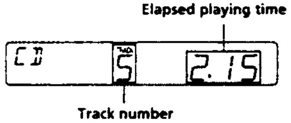
CD Player

Listening to a CD

Simply insert the CD.
Playback starts automatically.


Labelled side up

If a CD is already inserted, press (SOURCE) repeatedly until "CD" appears.


Elapsed playing time
CD
5
2.15
Track number

Note
To play back an 8 cm CD, use the optional Sony compact disc single adapter (CSA-8).

To	Press
Stop playback	⏏ or (OFF)
Eject the CD	⏏

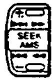
Changing the displayed items

Each time you press (DSPL), the item changes as follows:

Track number ⟷ Clock

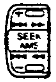
Locating a specific track
— Automatic Music Sensor (AMS)

During playback, press either side of (SEEK/AMS) momentarily.


SEEK AMS
To locate succeeding tracks
To locate preceding tracks

Locating a specific point in a track
— Manual Search

During playback, press and hold either side of (SEEK/AMS) for two seconds. Release the button when you have found the desired point.


SEEK AMS
To search forward
To search backward

Note
If "L L L L" or "┐ ┐ ┐ ┐" appears in the display, you have reached the beginning or the end of the disc and you cannot go any further.

Playing a CD in various modes

Searching for the desired track
— Intro Scan

Press (1) during playback.
"INTRO" appears in the display.

The first 10 seconds of all the tracks are played.

When you find the desired track, press again. The unit returns to the normal playback mode.

Playing tracks repeatedly
— Repeat Play

Press (2) during playback.
"REP" appears in the display.

When the currently played track is over, it will be played again from the beginning.

To cancel this mode, press again.

Playing tracks in random order
— Shuffle Play

Press (3) during playback.
"SHUF" appears in the display.

All tracks on the CD are played in random order.

To cancel this mode, press again.

Radio

Memorising stations automatically

— Best Tuning Memory (BTM)

The unit selects the stations with the strongest signals and memorises them in the order of their frequencies. You can store up to 6 stations on each band (FM1, FM2, FM3, MW and LW).

Caution

When tuning in a station while driving, use Best Tuning Memory to prevent accidents.

1. **Press (SOURCE) repeatedly to select the tuner.**
   Each time you press (SOURCE), the source changes as follows:
   CD ↔ TUNER
2. **Press (MODE) repeatedly to select the band.**
   Each time you press (MODE), the band changes as follows:
   → FM1 → FM2 → FM3 → MW → LW
3. **Press (SENS/BTM) for two seconds.**
   The unit stores stations in the order of their frequencies on the number buttons.

Notes
- *The unit does not store stations with weak signals. If only a few stations are received, some number buttons remain empty.*
- *When a number is indicated in the display, the unit starts storing stations from the one currently displayed.*
- *If a CD is not in the unit, only the tuner band appears even if you press (SOURCE).*

Memorising only the desired stations

You can store up to 6 stations on each band (18 for FM1, FM2 and FM3, 6 for each MW and LW) in the order of your choice.

1. **Press (SOURCE) repeatedly to select the tuner.**
2. **Press (MODE) repeatedly to select the band.**
3. **Press either side of (SEEK/AMS) to tune in the station that you want to store on the number button.**
4. **Press the desired number button (① to ⑥) for two seconds until "MEM" appears.**
   The number button indication appears in the display.

Note
If you try to store another station on the same number button, the previously stored station will be erased.

Receiving the memorised stations

1. **Select the desired band (page 8).**
2. **Press the number button (① to ⑥) momentarily where the desired station is stored.**

If you cannot tune in a preset station

Press either side of (SEEK/AMS) momentarily to search for the station (automatic tuning).
Scanning stops when the unit receives a station. Press either side of (SEEK/AMS) repeatedly until the desired station is received.

Note
If the automatic tuning stops too frequently, press (SENS/BTM) momentarily until "LCL" appears in the display (local seek mode). Only the stations with relatively strong signals will be tuned in.

Tip
If you know the frequency of the station you want to listen to, press and hold either side of (SEEK/AMS) for two seconds until the desired frequency appears (manual tuning).

If FM stereo reception is poor

— Monaural Mode

Press (SENS/BTM) momentarily until "MONO" appears.
The sound improves, but becomes monaural ("ST" disappears).

To go back to the normal mode, press again until "MONO" disappears.

Changing the displayed items

Each time you press (DSPL), the items alternate between the frequency and time.

RDS

Overview of the RDS function

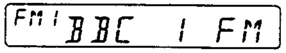
The Radio Data System (RDS) is a broadcasting service that allows FM stations to send additional digital information along with the regular radio programme signal. Your car stereo offers you a variety of services. Here are just a few: re-tuning the same programme automatically, listening to traffic announcements and locating a station by programme type.

Notes
- *Depending on the country or region, not all of the RDS functions are available.*
- *RDS may not work properly if the signal strength is weak or if the station you are tuned in to is not transmitting RDS data.*

Displaying the station name

The name of the station currently received lights up in the display.

Select an FM station (page 8).
When you tune in an FM station that transmits RDS data, the station name appears in the display.



Note
The "" indication means that an RDS station is being received.*

Changing the displayed items

Each time you press (DSPL), the item changes as follows:

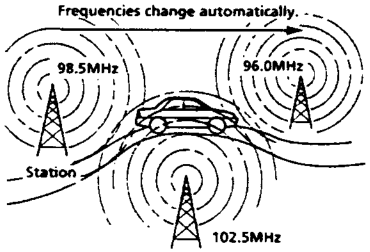
→ Frequency → Clock → Station Name

Note
"NO NAME" appears if the station received does not transmit RDS data.

Re-tuning the same programme automatically

— Alternative Frequencies (AF)

The Alternative Frequencies (AF) function automatically selects and re-tunes the station with the strongest signal in a network. By using this function, you can continuously listen to the same programme during a long-distance drive without having to re-tune the station manually.



1 **Select an FM station (page 8).**

2 **Press (AF/TA) repeatedly until "AF" appears.**
The unit starts searching for an alternative station with a stronger signal in the same network.

Note
When there is no alternative station in the area and you do not need to search for an alternative station, turn the AF function off by pressing (AF/TA) repeatedly until "AF TA" disappears.

Changing the displayed items

Each time you press (AF/TA), the item changes as follows:

→ AF → TA → AF TA* → Blank →

* *Select this to turn on both the AF and TA functions.*

Notes
- *"NO AF" and the station name flash alternately, if the unit cannot find an alternative station in the network.*
- *If the station name starts flashing after selecting a station with the AF function on, this indicates that no alternative frequency is available. Press (SEEK/AMS) while the station name is flashing (within eight seconds). The unit starts searching for another frequency with the same PI (Programme Identification) data ("PI SEEK" appears and no sound is heard). If the unit cannot find another frequency, "NO PI" appears, and the unit returns to the originally selected frequency.*

Listening to a regional programme

The "REG" (regional on) function of this unit lets you stay tuned to a regional programme without being switched to another regional station. (Note that you must turn the AF function on.) The unit is factory preset to "REG," but if you want to turn off the function, do the following.

Press (AF/TA) for more than two seconds until "REG" disappears.
Note that turning the "REG" function off might cause the unit to switch to another regional station within the same network.

Note
This function does not work in the United Kingdom and in some other areas.

Local link function (United Kingdom only)

The Local Link function lets you select other local stations in the area, even though they are not stored on your number buttons.

1 **Press a number button that has a local station stored on it.**

2 **Within five seconds, press the number button of the local station again.**

3 **Repeat this procedure until the desired local station is received.**

Listening to traffic announcements

The Traffic Announcement (TA) and Traffic Programme (TP) data let you automatically tune in an FM station that is broadcasting traffic announcements even though you are listening to other programme sources.

Press (AF/TA) repeatedly until "TA" or "AF TA" appears.
The unit starts searching for traffic information stations. "TP" appears in the display when the unit finds a station broadcasting traffic announcements.
When the traffic announcement starts, "TA" flashes. "TA" stops flashing when the traffic announcement is over.

Tips
- *If you press (AF/TA) while tuning in the traffic announcement, the unit can play a CD.*
- *If the traffic announcement starts while you are listening to another programme source, the unit automatically switches to the announcement and goes back to the original source when the announcement is over.*

Notes
- *"NO TP" flashes for five seconds if the received station does not broadcast traffic announcements. Then, the unit starts searching for a station that broadcasts traffic announcements.*
- *When "EON" appears with "TP" in the display, the current station makes use of traffic announcements broadcast by other stations in the same network.*

To cancel the current traffic announcement

Press (AF/TA) momentarily.
To cancel all traffic announcements, turn off the function by pressing (AF/TA) until "AF" and "TA" disappear.

Presetting the volume of traffic announcements

You can preset the volume level of the traffic announcements beforehand so you won't miss the announcement. When a traffic announcement starts, the volume will be automatically adjusted to the preset level.

1 **Select the desired volume level.**

2 **Press (3) while pressing (SEL).**
"TA VOL" appears and the setting is stored.

Receiving emergency announcements

If an emergency announcement comes in while you are listening to the radio, the programme will be automatically switched to the announcement. If you are listening to a source other than the radio, the emergency announcements will be heard if you set AF or TA to on. The unit will then automatically switch to these announcements no matter what you are listening to at the time.

Presetting RDS stations with the AF and TA data

When you preset RDS stations, the unit stores each station's data as well as its frequency, so you don't have to turn on the AF or TA function every time you tune in the preset station. You can select a different setting (AF, TA, or both) for individual preset stations, or the same setting for all preset stations.

Presetting the same setting for all preset stations

1 **Select an FM band (page 8).**

2 **Press (AF/TA) repeatedly to select either "AF," "TA" or "AF TA" (for both AF and TA functions).**
Note that turning the "AF TA" function off stores RDS stations as well as non-RDS stations.

3 **Press (SENS/BTM) for two seconds.**

Presetting different settings for each preset station

1 **Select an FM band, and tune in the desired station (page 8).**

2 **Press (AF/TA) repeatedly to select either "AF," "TA" or "AF TA" (for both AF and TA functions).**

3 **Press the desired number button for two seconds until "MEM" appears.**
Repeat from step 1 for presetting other stations.

Tip
If you want to change the preset AF and/or TA setting after you tune in the preset station, you can do so by turning on/off the AF or TA function.

Locating a station by programme type

You can locate the station you want by selecting one of the programme types shown below.

Note
If the countries or regions where EON data is not transmitted, you can use this function only for the stations you have tuned in once before.

Programme types	Display
News	NEWS
Current Affairs	AFFAIRS
Information	INFO
Sports	SPORT
Education	EDUCATE
Drama	DRAMA
Culture	CULTURE
Science	SCIENCE
Varied	VARIED
Popular Music	POP M
Rock Music	ROCK M
Middle of the Road Music	M.O.R. M
Light Classical	LIGHT M
Classical	CLASSICS
Other Music Types	OTHER M
Weather	WEATHER
Finance	FINANCE
Children's programmes	CHILDREN
Social Affairs	SOCIAL A
Religion	RELIGION
Phone In	PHONE IN
Travel	TRAVEL
Leisure	LEISURE
Jazz Music	JAZZ
Country Music	COUNTRY
National Music	NATION M
Oldies Music	OLDIES
Folk Music	FOLK M
Documentary	DOCUMENT
Not specified	NONE

Note
You cannot use this function in some countries where no PTY (Programme Type selection) data is available.

1 **Press (PTY) during FM reception until "PTY" appears.**

The current programme type name appears if the station is transmitting PTY data.
"- - - - -" appears if the received station is not an RDS station, or if the RDS data has not been received.

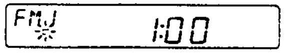
2 **Press (PTY) repeatedly until the desired programme type appears.**
The programme types appear in the order shown in the above table. Note that you cannot select "NONE" (Not specified) for searching.

3 **Press either side of (SEEK/AMS).**
The unit starts searching for a station broadcasting the selected programme type. When the unit finds the programme, the programme type appears again for five seconds.
"NO" and the programme type appear alternately for five seconds if the unit cannot find the programme type. It then returns to the previous station.

Setting the clock automatically

The CT (Clock Time) data from the RDS transmission sets the clock automatically.

During FM reception, press ② while pressing (SEL).
"CT" is displayed, and the clock is set.



To cancel the CT function

Repeat the above procedure.

Notes
- *The CT function may not work even though an RDS station is being received.*
- *There might be a difference between the time set by the CT function and the actual time.*

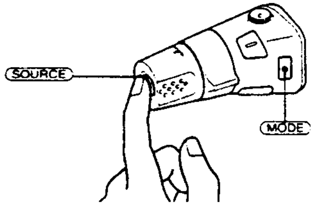
Other Functions

You can connect an optional rotary commander (RM-X4S) with this unit.

Using the rotary commander

The rotary commander works by pressing buttons and/or rotating controls.

By pressing buttons (the SOURCE and MODE buttons)

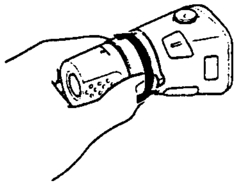


Each time you press SOURCE, the source changes as follows:
TUNER ⟶ CD

Pressing MODE changes the operation in the following ways;
Tuner: FM1 ⟶ FM2 ⟶ FM3 ⟶ MW ⟶ LW

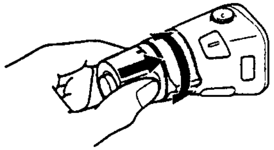
Tip
When the POWER SELECT switch is set to position Ⓑ, you can turn on this unit by pressing SOURCE on the rotary commander.

By rotating the control (the SEEK/AMS control)



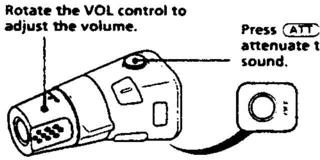
Rotate the control momentarily and release it to:
- Locate a specific track on a disc. Rotate and hold the control until you locate the specific point in a track, then release it to start playback.
- Tune in stations automatically. Rotate and hold the control to tune in a specific station.

By pushing in and rotating the control (the PRESET/DISC control)



Push in and rotate the control to:
Receive the stations memorised on the number buttons.

Other operations

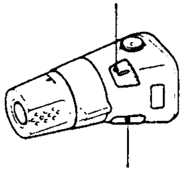


Rotate the VOL control to adjust the volume.

Press ATT to attenuate the sound.

Press OFF to turn off the unit.

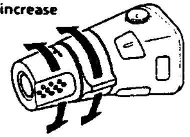
Press SEL to adjust and select.



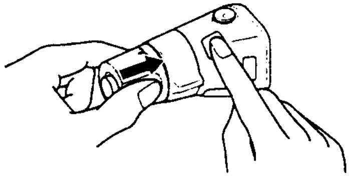
Press DSPL to change the displayed items.

Changing the operative direction

The operative direction of controls is factory-set as in the illustration below.



If you need to mount the rotary commander on the right side of the steering column, you can reverse the operative direction.



Press SEL for two seconds while pushing the VOL control.

Adjusting the sound characteristics

You can adjust the bass, treble, balance and fader. Each source can store the bass and treble level settings independently.

1. **Select the item you want to adjust by pressing SEL repeatedly.**

   VOL (volume) ⟶ BAS (bass) ⟶
   TRE (treble) ⟶ BAL (left-right) ⟶
   FAD (front-rear)

2. **Adjust the selected item by pressing ⊕ or ⊖.**
   Adjust within three seconds after selecting the item. (After three seconds, the buttons work as volume control buttons.)

Attenuating the sound

Press ATT.
"ATT" flashes.

To restore the previous volume level, press ATT again.

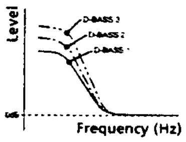
Changing the sound and beep tone

Boosting bass sound — D-bass

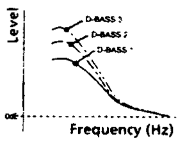
You can enjoy clear and powerful bass sound. The D-bass function boosts the low frequency signal with a sharper curve than conventional bass boost.
You can hear the bass line more clearly even if the vocal sound is the same volume. You can emphasize and adjust the bass sound easily with the D-BASS dial. This effect is similar to the one you get when you use an optional subwoofer system.
Moreover, the Digital D-bass* function creates even sharper and more powerful bass sound than Analog D-bass.

* *Digital D-bass is available during CD playback.*

Digital D-BASS



Analog D-BASS



Adjusting the bass curve

Turn the D-BASS dial to adjust the bass level (1, 2 or 3).
"D-BASS" appears in the display.
During CD playback, "DIGITAL D-BASS" appears in the display.

To cancel, turn the dial to the OFF position.

Note
If the bass sound becomes distorted, adjust the D-BASS dial or the volume control.

Attenuating the beep tone

Press ⑥ while pressing (SEL).

To obtain the beep tone again, press these buttons again.

Note
When connecting an optional power amplifier to the LINE OUT, the beep tone is disabled.

Additional Information

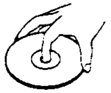
Precautions

- If your car was parked in direct sunlight resulting in a considerable rise in temperature inside the car, allow the unit to cool off before operating it.
- If no power is being supplied to the unit, check the connections first. If everything is in order, check the fuse.
- If no sound comes from the speakers of a two-speaker system, set the fader control to the centre position.
- If your car is equipped with a power aerial, note that it will extend automatically while the unit is operating.

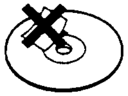
If you have any questions or problems concerning your unit that are not covered in this manual, please consult your nearest Sony dealer.

Notes on handling CDs

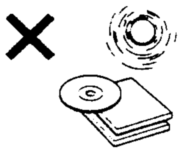
A dirty or defective disc may cause sound dropouts while playing. To enjoy optimum sound, handle the disc as follows.
Handle the disc by its edge. To keep the disc clean, do not touch the surface.



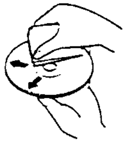
Do not stick paper or tape on the labelled surface.



Do not expose the discs to direct sunlight or heat sources such as hot air-ducts, or leave them in a car parked in direct sunlight where there can be a considerable rise in the temperature inside the car.



Before playing, clean the discs with an optional cleaning cloth. Wipe each disc from the centre out.
Do not use solvents such as benzine, thinner, commercially available cleaners or antistatic spray intended for analog discs.



Notes on moisture condensation

On a rainy day or in a very damp area, moisture may condense on the lenses inside the CD player. Should this occur, the unit will not operate properly. In this case, remove the disc and wait for about an hour until the moisture evaporates.

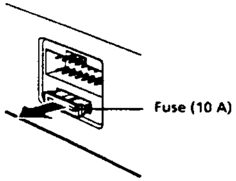
When you play 8 cm CDs

Use the optional Sony compact disc single adapter (CSA-8) to protect the CD player from being damaged.

Maintenance

Fuse replacement

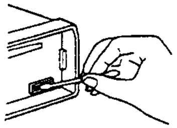
When replacing the fuse, be sure to use one that matches the amperage described on the fuse. If the fuse blows, check the power connection and replace the fuse. If the fuse blows again after replacement, there may be an internal malfunction. In such a case, consult your nearest Sony dealer.



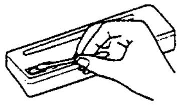
Warning
Never use a fuse with an amperage rating exceeding the one supplied with the unit as this could damage the unit.

Cleaning the connectors

The unit may not function properly if the connectors between the unit and the front panel are not clean. To prevent this, open the front panel by pressing (RELEASE), then detach it and clean the connectors with a cotton swab dipped in alcohol. Do not apply too much force. Otherwise, the connectors may be damaged.

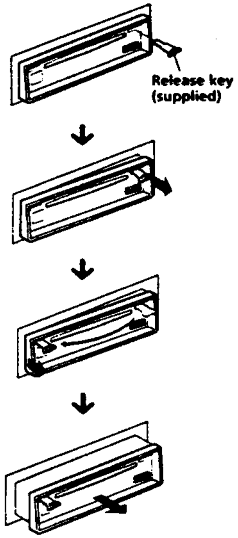


Main unit



Back of the front panel

Dismounting the unit

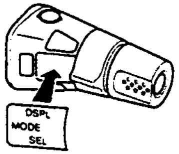

Release key
(supplied)

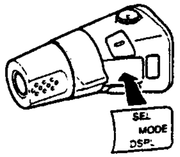
Attaching the label to the rotary commander

You can control this unit with the optional rotary commander (RM-X4S).

Several labels are supplied with the rotary commander. Attach the label that matches the functions of this unit and the mounting position of the rotary commander.

After you mount the rotary commander, attach the label in the illustration below.


DSPL
MODE
SEL


SEL
MODE
DSPL

Connections

Caution

- This unit is designed for negative earth 12 V DC operation only.
- Connect the power connecting cord ⑤ to the unit and speakers before connecting it to the auxiliary power connector.
- **Run all earth wires to a common earth point.**
- Connect the yellow cord to a free car circuit rated higher than the unit's fuse rating. If you connect this unit in series with other stereo components, the car circuit they are connected to must be rated higher than the sum of the individual component's fuse rating. If there are no car circuits rated as high as the unit's fuse rating, connect the unit directly to the battery. If no car circuits are available for connecting this unit, connect the unit to a car circuit rated higher than the unit's fuse rating in such a way that if the unit blows its fuse, no other circuits will be cut off.

If your car has no accessory position on the ignition key switch — POWER SELECT Switch

The illumination on the front panel is factory-set to be on even when the unit is not being used. However, this setting may cause some car battery wear **if your car has no accessory position on the ignition key switch.** To avoid this battery wear, **set the POWER SELECT switch located on the bottom of the unit to the Ⓑ position, then press the reset button.** The illumination is reset to stay off while the unit is not being used.

Notes
- *The caution alarm for the front panel is not activated when the POWER SELECT switch is set to the Ⓑ position.*
- *Do not use excessive force when changing the POWER SELECT switch.*

Reset button

When the installation and connections are complete, be sure to press the reset button with a ballpoint pen etc.

Notes of connection example

Note on the control leads
The power aerial control lead (blue) supplies +12 V DC when you turn on the tuner or when you activate the AF (Alternative Frequency) or the TA (Traffic Announcement) functions.

Memory hold connection
When the yellow power input lead is connected, power will always be supplied to the memory circuit even when the ignition key is turned off.

Notes on speaker connection
- *Before connecting the speakers, turn the unit off.*
- *Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.*
- *Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.*
- *Do not attempt to connect the speakers in parallel.*
- *Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers. Therefore, be sure to connect passive speakers to these terminals.*

Warning
If you have a power aerial without a relay box, connecting this unit with the supplied power connecting cord ⑤ may damage the aerial.

Conexiones

Precauciones

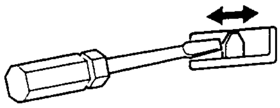
- Esta unidad ha sido diseñada para alimentarse solamente con 12 V CC, negativo a masa.
- Conecte el cable de conexión de alimentación ⑤ a la unidad y a los altavoces antes de hacerlo al conector de alimnentación auxiliar.
- **Conecte todos los conductores de puesta a masa a un punto común.**
- Conecte el cable amarillo a un circuito libre del automóvil que tenga una capacidad superior a la del fusible de la unidad. Si conecta esta unidad en serie con otros componentes estereofónicos, el circuito del automóvil al que se encuentran conectados debe tener una capacidad superior a la de la suma de las capacidades de los fusibles de cada componente. Si ningún circuito del automóvil tiene una capacidad tan alta como la del fusible de la unidad, conecte ésta directamente a la batería. Si el automóvil no dispone de ningún circuito para conectar esta unidad, conéctela a un circuito del automóvil con capacidad superior a la del fusible de la unidad, de forma que si se funde el fusible de ésta, no se interrumpa ningún otro circuito.

Si el automóvil no dispone de posición para accesorios en la llave de encendido

— Selector POWER SELECT

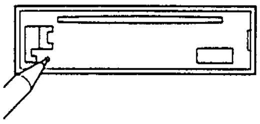
La iluminación del panel frontal ha sido ajustada en fábrica para que permanezca activada aunque la unidad no se encuentre en funcionamiento. Sin embargo, este ajuste puede provocar cierta descarga de la batería del automóvil **si éste no dispone de posición para accesorios en la llave de encendido.** Para evitar esto, **coloque el selector POWER SELECT, situado en la base de la unidad, en la posición Ⓑ y, después, presione el botón de reposición.** La iluminación estará desactivada cuando la unidad no se encuentre en funcionamiento.

Notas
- *La alarma de precaución del panel frontal no se activará cuando el selector POWER SELECT se encuentre en la posición Ⓑ.*
- *No utilice excesiva fuerza al cambiar el selector POWER SELECT.*



Botón de reposición

Cuando finalice la instalación y las conexiones, cerciórese de presionar el botón de reposición con un bolígrafo, etc.



Notas de ejemplo de conexiones

Nota sobre conductores de control
El conductor de control de la antena motorizada (azul) suministrará +12 V CC cuando conecte la alimentación del sintonzador o cuando active la frecuencia alternativa (AF) o la función de anuncios de tráfico (TA).

Conexión para protección de la memoria
Si conecta el conductor de entrada amarillo, el circuito de la memoria recibirá siempre alimentación, incluso aunque sitúe la llave de encendido en la posición OFF.

Notas sobre la conexión de los altavoces
- *Antes de conectar los altavoces, desconecte la alimentación de la unidad.*
- *Utilice altavoces con una impedancia de 4 a 8 ohmios, y con la potencia máxima admisible adecuada, ya que de lo contrario podría dañarlos.*
- *No conecte los terminales del sistema de altavoces al chasis del automóvil, ni los del altavoz izquierdo a los del derecho.*
- *No intente conectar los altavoces en paralelo.*
- *No conecte altavoces activos (con amplificadores incorporados) a los terminales de altavoces de la unidad. Si lo hiciese, podría dañar tales altavoces. Por lo tanto, cerciórese de conectar altavoces pasivos a estos terminales.*

Advertencia
Si dispone de una antena motorizada sin dispositivo de relé, la conexión de esta unidad con el cable de conxión de alimentación ⑤ suministrado puede dañar la antena.

Connexions

Advertência

- Este aparelho foi projectado para funcionar somente com corrente contínua de 12 V com massa negativa.
- Ligue o cabo de alimentação de corrente ⑤ ao aparelho e aos alifalantes antes de o ligar ao conector de corrente auxiliar.
- **Ligue todos os fios de terra num ponto de massa comum.**
- Ligue o cabo amarelo a um circuito livre do automóvel com uma capacidade nominal superior à do fusível do aparelho. Se ligar este aparelho em série com outros componentes estéreo, o circuito do automóvel a que estão ligados deve ter uma capacidade nominal superior à soma da capacidade dos fusíveis de cada componente. Se nenhum circuito do automóvel tiver uma capacidade tão alta como a do fusível do aparelho, ligue o aparelho directamente à bateria. Se o automóvel não tiver nenhum circuito disponível para ligação do aparelho, ligue-o a um circuito com uma capacidade superior à do fusível do aparelho para que se o fusível do aparelho se fundir, nenhum dos outros circuitos seja cortado.

Se o seu automóvel não estiver equipado com uma chave de ignição com posição acessórios

— Interruptor POWER SELECT

A iluminação do painel frontal é regulada na fábrica para se manter acesa, mesmo quando o aparelho não estiver ligado. No entanto, esta regulação pode provocar a descarga da bateria **se o aparelho for utilizado em automóveis sem chave de ignição com posição acessórios.** Para evitar a descarga da bateria, **regule o interruptor POWER SELECT, situado na base do aparelho, para a posição Ⓑ. Em seguida, carregue no botão de reinicialização.** A iluminação é regulada para ficar apagada enquanto o aparelho estiver desligado.

Notas
- *O alarme de advertência do painel frontal não é activado quando o interruptor POWER SELECT estiver regulado para a posição Ⓑ.*
- *Não faça demasiada força ao mudar a posição do interruptor POWER SELECT.*

Botão de reinicialização

Quando terminar a instalação e as ligações, não se esqueça de carregar no botão de reinicialização com a ponta de uma caneta, etc.

Notas sobre o exemplo de ligação

Nota sobre os fios de controlo
O fio de controlo da antena eléctrica (azul) fornece uma corrente contínua (CC) de +12 V quando se liga o sintonizador ou se activa a função AF (Frequência Alternativa) ou TA (Informações de Trânsito).

Ligação para alimentação contínua da memória
Quando ligar o fio amarelo de entrada de alimentação for, os circuitos de memória ficarão com alimentação continua, mesmo se a chave de ignição estiver desligada.

Notas sobre a ligação dos altifalantes
- *Antes de ligar os altifalantes, desligue o aparelho.*
- *Utilize altifalantes com impedância de 4 a 8 ohm, e com capacidade admissível de potência adequada. Caso contrário, os altifalantes poderão sofrer avarias.*
- *Não ligue os terminais do sistema de altifalantes ao chassis do automóvel, e não ligue os terminais do altifalante direito aos terminais do altifalante esquerdo.*
- *Não tente ligar os altifalantes em paralelo.*
- *Não ligue nenhum sistema de altifalantes activos (com amplificadores incorporados) aos terminais dos altifalantes do aparelho.*
  Caso o faça, poderá avariar o sistema de altifalantes activos. Portanto, não se esqueça de ligar altifalantes passivos a estes terminais.

Atenção
Se a antena eléctrica não tiver uma caixa de relé, o facto de ligar esta aparelho com a cabo de alimentação ⑤ fornecido, pode provocar danos na antena.

Anslutning

Sökerhetsföreskrifter

- Denna bilstereo är endast avsedd för anslutning till ett negativt jordat, 12 V bilbatteri.
- Anslut strömkabeln ⑤ till enheten och högtalarna innan du ansluter den till den yttre strömanslutningen.
- **Dra samtliga jordledningar till en och samma jordningspunkt.**
- Anslut den gula kabeln till en ledig bilkrets som har en säkring med ett högre än ampere än enheten. Om du seriekopplar denna enhet med andra stereokomponenter, måste den bilkrets de är kopplade till ha en säkring med en högre ampere än summan av de enskilda komponenternas ampere. Om det inte finns någon bilkrets som har en säkring med ett lika högt ampere som enheten, ska du ansluta enheten direkt till batteriet. Om det inte finns några bilkretsar att ansluta denna enhet till ska du ansluta enheten till en enhet som har en säkring med ett högre ampere än enheten för att förhindra att inga andra kretsar klipps av om säkringen smälter.

Montera bilstereon i en bil vars tändlås inte har något strömläge

— Omkopplaren POWER SELECT

Innan bilstereon levererades från fabriken ställdes belysningen i teckenfönstret in så att den lyser också när bilstereon inte används. Detta kan emellertid orsaka urladdning av batteriet när du använder bilstereon **i en bil, vars tändlås saknar läget ACC (strömläge). Skjut omkopplaren POWER SELECT på bilstereons undersida till läge Ⓑ, och tryck sedan på återställningsknappen** för att undvika att bilbatteriet laddas ur. Nu lyser inte längre belysningen i teckenfönstret när bilstereon inte används.

Observera
- *Varningssignalen, som varnar om du inte har tagit loss frontpanelen, ljuder inte när omkopplaren POWER SELECT står i läge Ⓑ.*
- *Ta inte i för hårt när du byter omkopplaren POWER SELECT.*

Nollställningsknappen

Kom ihåg att använda en penna eller något annat spetsigt föremål för att trycka på nollställningsknappen när anslutningen och monteringen är klar.

Att observera angående anslutningsexemplen

Att observera angående de olika styrkablarna
Motorantennens styrkabel ANT REM (blå) leder 12 V likström när bilradion slås på eller när radiomottagningsautomatiken alternativa frenkvenser (AF) eller trafikmeddelanden (TA).

Anslutning för minnesstöd
När du anslutit den gula, ingående strömkabeln försörjs minneskretsen med ström hela tiden, även när tändlåset slås ifrån.

Att observera angående högtalarnas anslutning
- *Slå av bilstereon innan du ansluter högtalarna.*
- *Anslut endast högtalare, vars impedans varierar från 4 till 8 ohm och som har tillräcklig effekthanteringskapacitet för att skydda högtalarna mot skador.*
- *Anslut inte något av högtalaruttagen till bilens chassi. Anslut inte heller uttagen på höger högtalare till uttagen på vänster högtalare.*
- *Anslut inte högtalarna parallellt.*
- *Anslut inte aktiva högtalare (med inbyggda slutsteg) till bilstereons högtalaruttag, eftersom de kan skada de aktiva högtalarna.*
  Var noga med att bara ansluta passiva högtalare till dessa uttag.

Varning
Om du har en motorantenn utan relädosa kan antennen skadas om du ansdluter enheten med den medföljande strömkabeln ⑤.

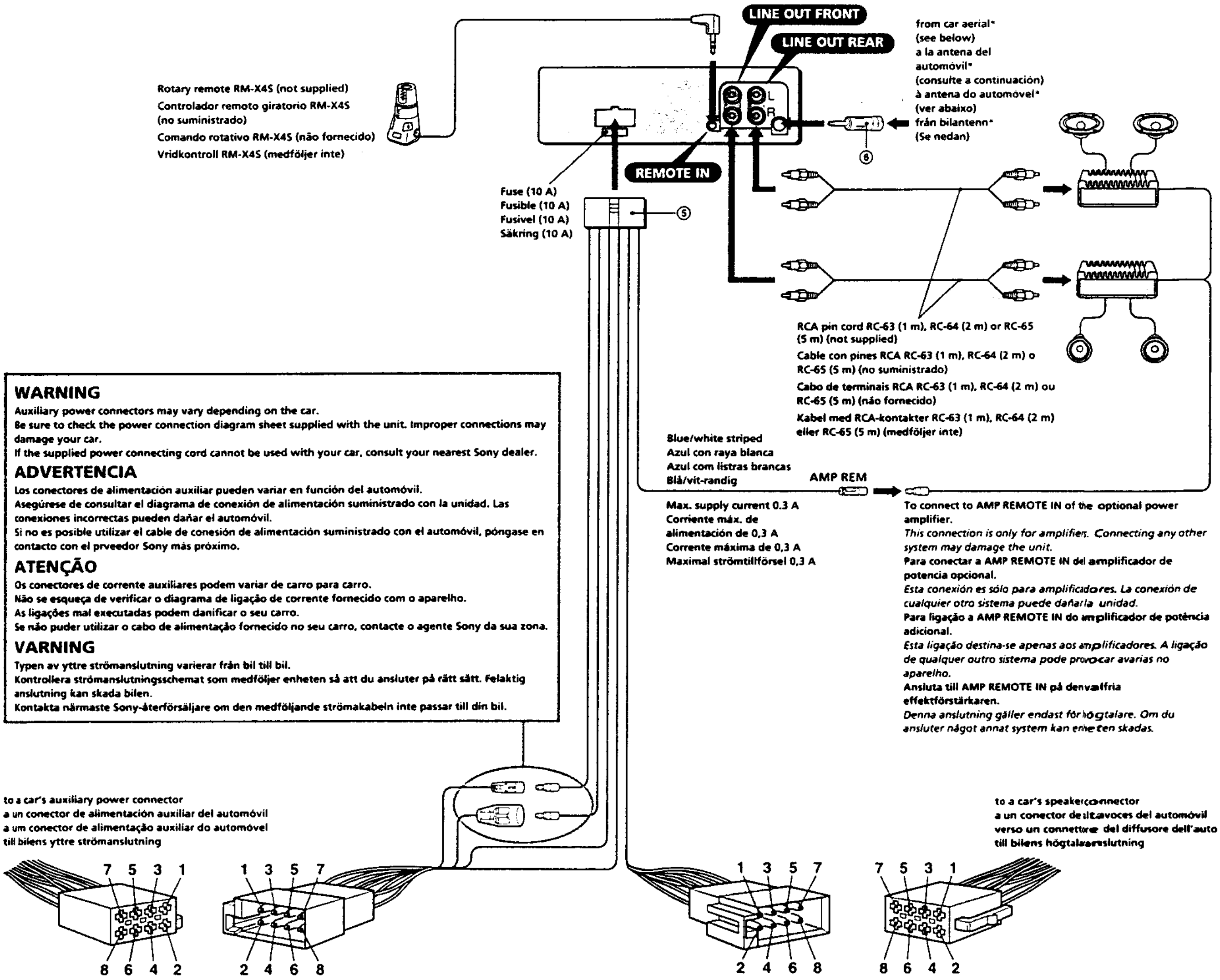
Connection example
Ejemplo de conexiones
Exemplo de ligações
Anslutningarna enligt exemplet

* ***Note for the aerial connecting***
If your car aerial is an ISO (International Organization for Standardization) type, use the supplied adapter ⑧ to connect it. First connect the car aerial to the supplied adapter, then connect it to the aerial jack of the master unit.

* ***Nota sobre la conexión de la antena***
Si la antena del automóvil es del tipo ISO (International Organization for Standardization), emplee el adaptador suministrado para ⑧ conectarla. En primer lugar, conecte la antena del automóvil al adaptador suministrado y, a continuación, a la toma de antena de la unidad principal.

* ***Nota referente à ligação da antena***
Se a antena do automóvel for uma antena de tipo ISO (International Organization for Standardization), utilize o adaptador fornecido ⑧ para fazer a ligação respectiva. Ligue primeiro a antena do automóvel ao adaptador fornecido e depois à ficha tipo jack do sistema principal.

* ***Angående antennanslutning***
Om motorantennen är av ISO-typ (International Organization for Standardization), använder du medföljande adapter ⑧ för att ansluta den. Anslut först motorantennen till medföljande adapter och därefter till antennuttaget på huvudenheten.


LINE OUT FRONT
LINE OUT REAR
REMOTE IN
from car aerial*
(see below)
a la antena del automóvil*
(consulte a continuación)
à antena do automóvel*
(ver abaixo)
från bilantenn*
(Se nedan)
⑧
Rotary remote RM-X4S (not supplied)
Controlador remoto giratorio RM-X4S (no suministrado)
Comando rotativo RM-X4S (não fornecido)
Vridkontroll RM-X4S (medföljer inte)
Fuse (10 A)
Fusible (10 A)
Fusivel (10 A)
Säkring (10 A)
⑤
RCA pin cord RC-63 (1 m), RC-64 (2 m) or RC-65 (5 m) (not supplied)
Cable con pines RCA RC-63 (1 m), RC-64 (2 m) o RC-65 (5 m) (no suministrado)
Cabo de terminais RCA RC-63 (1 m), RC-64 (2 m) ou RC-65 (5 m) (não fornecido)
Kabel med RCA-kontakter RC-63 (1 m), RC-64 (2 m) eller RC-65 (5 m) (medföljer inte)
Blue/white striped
Azul con raya blanca
Azul com listras brancas
Blå/vit-randig
AMP REM
to a car's auxiliary power connector
a un conector de alimentación auxiliar del automóvil
a um conector de alimentação auxiliar do automóvel
till bilens yttre strömanslutning
to a car's speaker connector
a un conector de altavoces del automóvil
verso un connettore del diffusore dell'auto
till bilens högtalaranslutning
7 5 3 1
8 6 4 2
1 3 5 7
2 4 6 8
1 3 5 7
2 4 6 8
7 5 3 1
8 6 4 2

WARNING

Auxiliary power connectors may vary depending on the car.
Be sure to check the power connection diagram sheet supplied with the unit. Improper connections may damage your car.
If the supplied power connecting cord cannot be used with your car, consult your nearest Sony dealer.

ADVERTENCIA

Los conectores de alimentación auxiliar pueden variar en función del automóvil.
Asegúrese de consultar el diagrama de conexión de alimentación suministrado con la unidad. Las conexiones incorrectas pueden dañar el automóvil.
Si no es posible utilizar el cable de conesión de alimentación suministrado con el automóvil, póngase en contacto con el prveedor Sony más próximo.

ATENÇÃO

Os conectores de corrente auxiliares podem variar de carro para carro.
Não se esqueça de verificar o diagrama de ligação de corrente fornecido com o aparelho.
As ligações mal executadas podem danificar o seu carro.
Se não puder utilizar o cabo de alimentação fornecido no seu carro, contacte o agente Sony da sua zona.

VARNING

Typen av yttre strömanslutning varierar från bil till bil.
Kontrollera strömanslutningsschemat som medföljer enheten så att du ansluter på rätt sätt. Felaktig anslutning kan skada bilen.
Kontakta närmaste Sony-återförsäljare om den medföljande strömakabeln inte passar till din bil.

Max. supply current 0.3 A
Corriente máx. de alimentación de 0,3 A
Corrente máxima de 0,3 A
Maximal strömtillförsel 0,3 A

To connect to AMP REMOTE IN of the optional power amplifier.
This connection is only for amplifiers. Connecting any other system may damage the unit.
Para conectar a AMP REMOTE IN del amplificador de potencia opcional.
Esta conexión es sólo para amplificadores. La conexión de cualquier otro sistema puede dañarla unidad.
Para ligação a AMP REMOTE IN do amplificador de potência adicional.
Esta ligação destina-se apenas aos amplificadores. A ligação de qualquer outro sistema pode provocar avarias no aparelho.
Ansluta till AMP REMOTE IN på den valfria effektförstärkaren.
Denna anslutning gäller endast för högtalare. Om du ansluter något annat system kan enheten skadas.

4	Yellow Amarillo Amarelo Gul	continuous power supply suministro de alimentación continua alimentação de corrente continua kontinuerlig strömförsörjning	7	Red Rojo Vermelho Röd	switched power supply suministro de alimentación alimentação de corrente comutada switchad strömförsörjning
5	Blue Azul Azul Blå	power aerial control antena eléctrica antena eléctrica elektrisk seriell	8	Black Negro Preto Svart	earth toma de tierra Terra jord

Positions 1, 2, 3 and 6 do not have pins.
Las posiciones 1, 2, 3 y 6 no disponen de pines.
As posições 1, 2, 3 e 6 não têm pinos.
Positionerna 1, 2, 3 och 6 saknar stift.

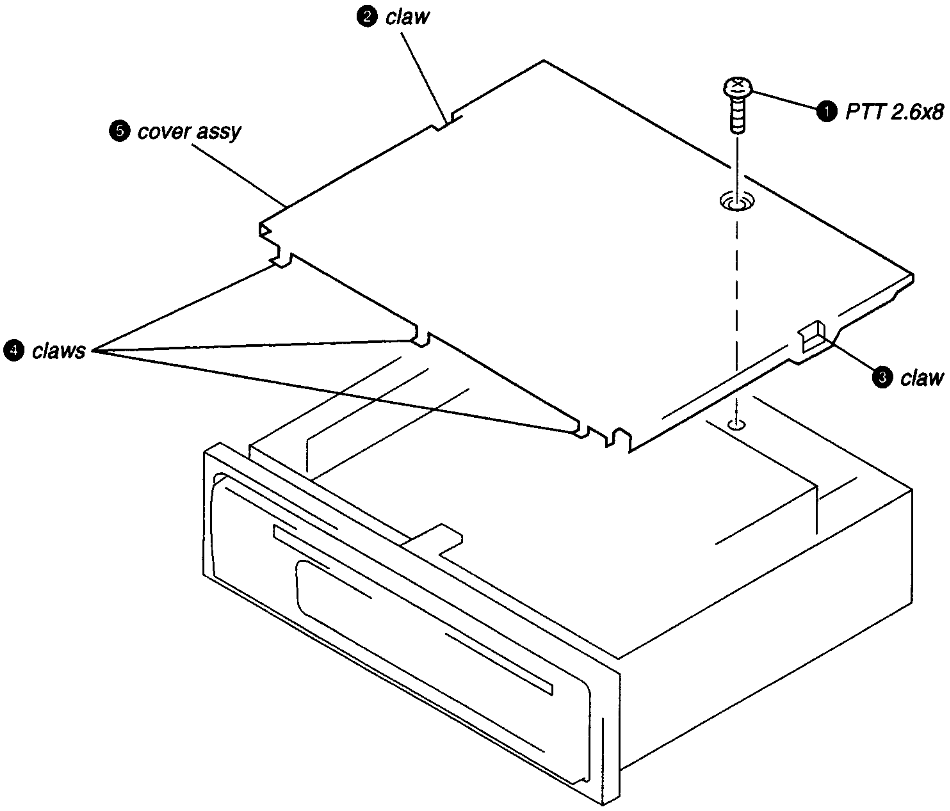
1	Purple Purpura Violeta Morklila	+	Speaker, Rear, Right Altavoz, parte posterior, derecho Altifalante, Parte de trás, Direito Högtalare, bakre, höger	5	White Blanco Branco Vit	+	Speaker, Front, Left Altavoz, parte frontal, izquierdo Altifalante, Parte da frente, Esquerdo Högtalare, främre, vänster
2		-	Speaker, Rear, Right Altavoz, parte posterior, derecho Altifalante, Parte de trás, Direito Högtalare, bakre, höger	6		-	Speaker, Front, Left Altavoz, parte frontal, izquierdo Altifalante, Parte da frente, Esquerdo Högtalare, främre, vänster
3	Grey Gris Cinza Grå	+	Speaker, Front, Right Altavoz, parte frontal, derecho Altifalante, Parte da frente, Direito Högtalare, främre, höger	7	Green Verde Verde Grön	+	Speaker, Rear, Left Altavoz, parte posterior, izquierdo Altifalante, Parte de trás, Esquerdo Högtalare, bakre, vänster
4		-	Speaker, Front, Right Altavoz, parte frontal, derecho Altifalante, Parte da frente, Direito Högtalare, främre, höger	8		-	Speaker, Rear, Left Altavoz, parte posterior, izquierdo Altifalante, Parte de trás, Esquerdo Högtalare, bakre, vänster

Negative polarity positions 2, 4, 6, and 8 have striped cords.
Las posiciones de polaridad negativa 2, 4, 6 y 8 tienen cables con raya.
As posições 2, 4, 6 e 8 (polaridade negativa) têm cabos às riscas.
De negativa polpositionerna 2, 4, 6 och 8 har randiga kablar.

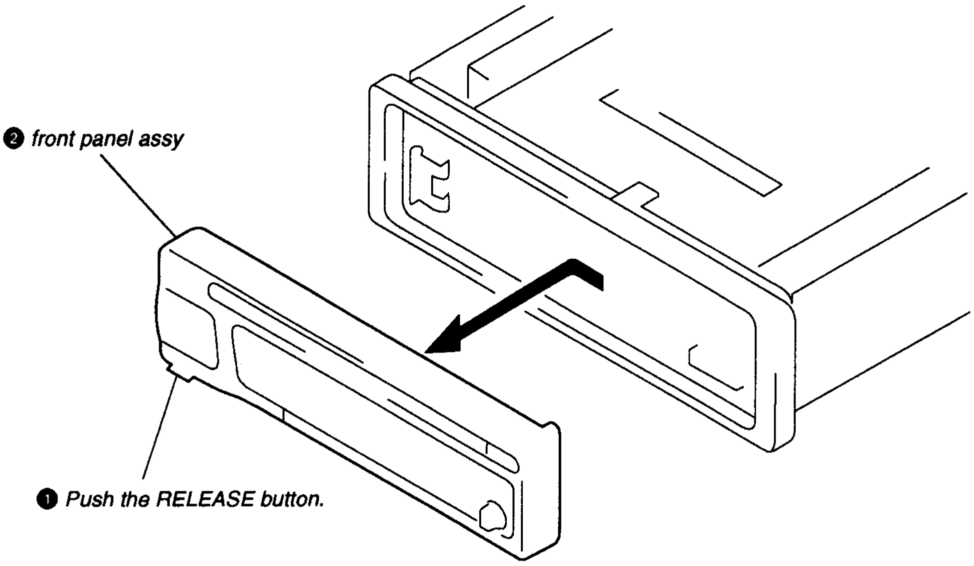
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

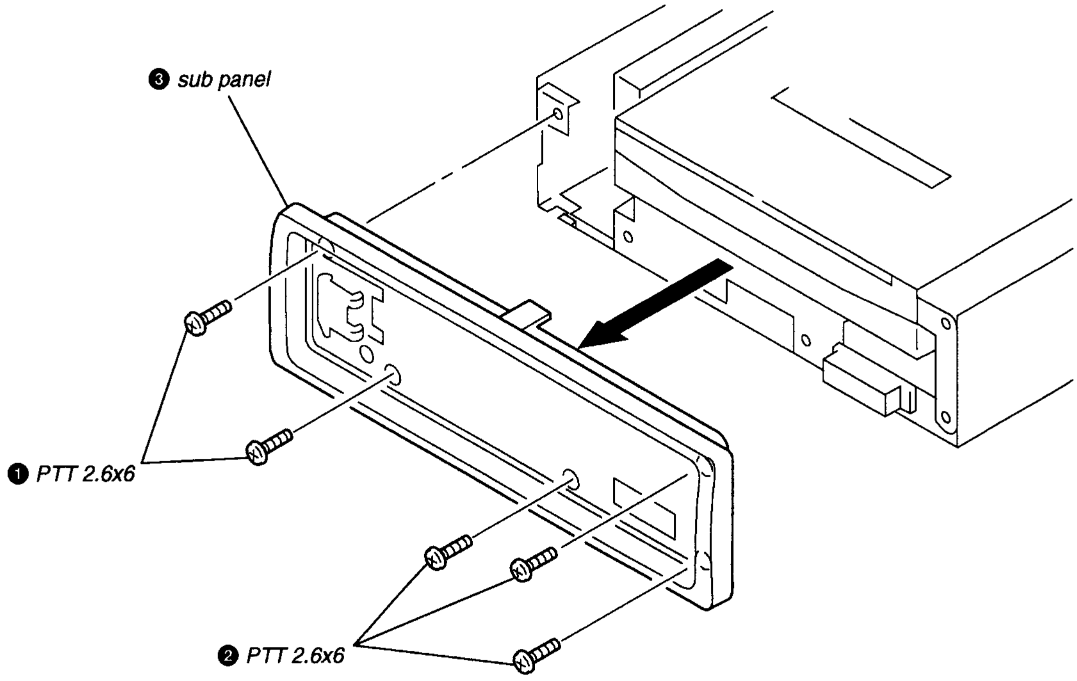
2-1. COVER ASSY


❷ claw
❺ cover assy
❶ PTT 2.6x8
❹ claws
❸ claw

2-2. FRONT PANEL ASSY

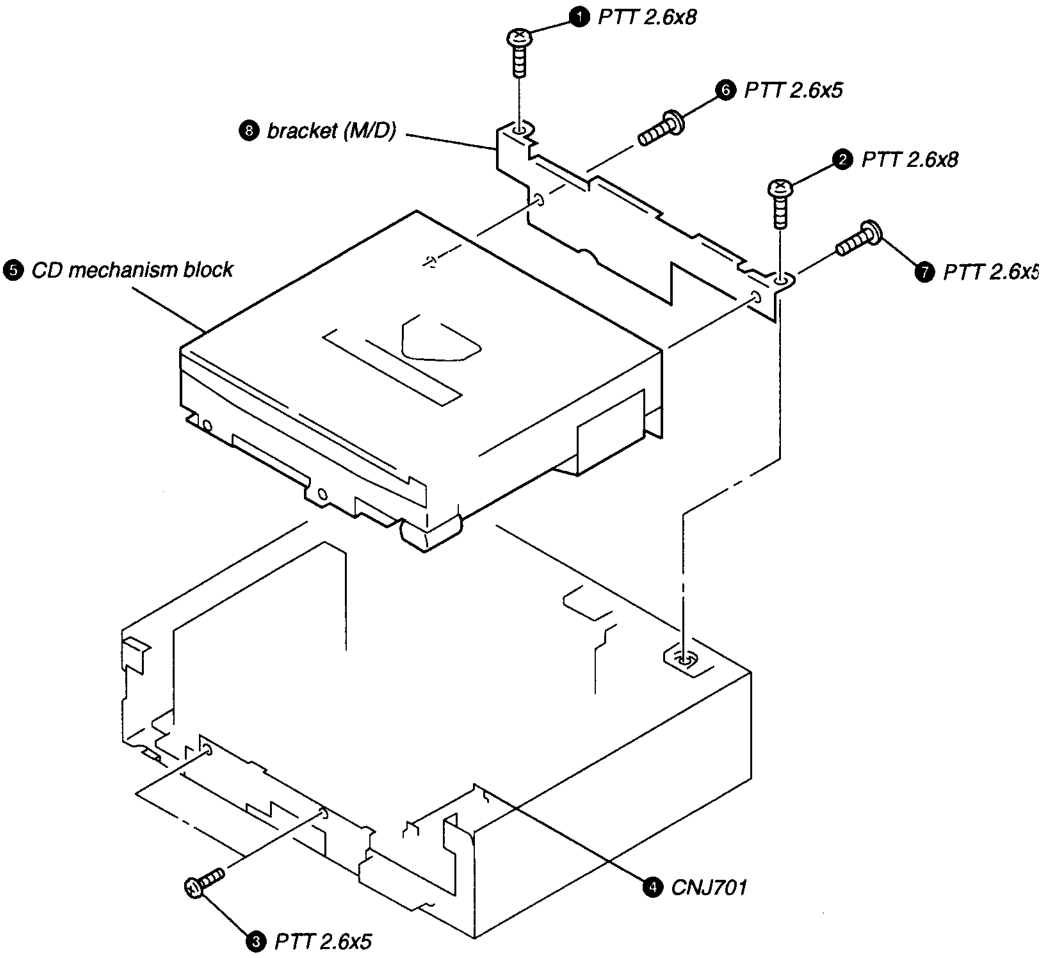

❷ front panel assy
❶ Push the RELEASE button.

2-3. SUB PANEL



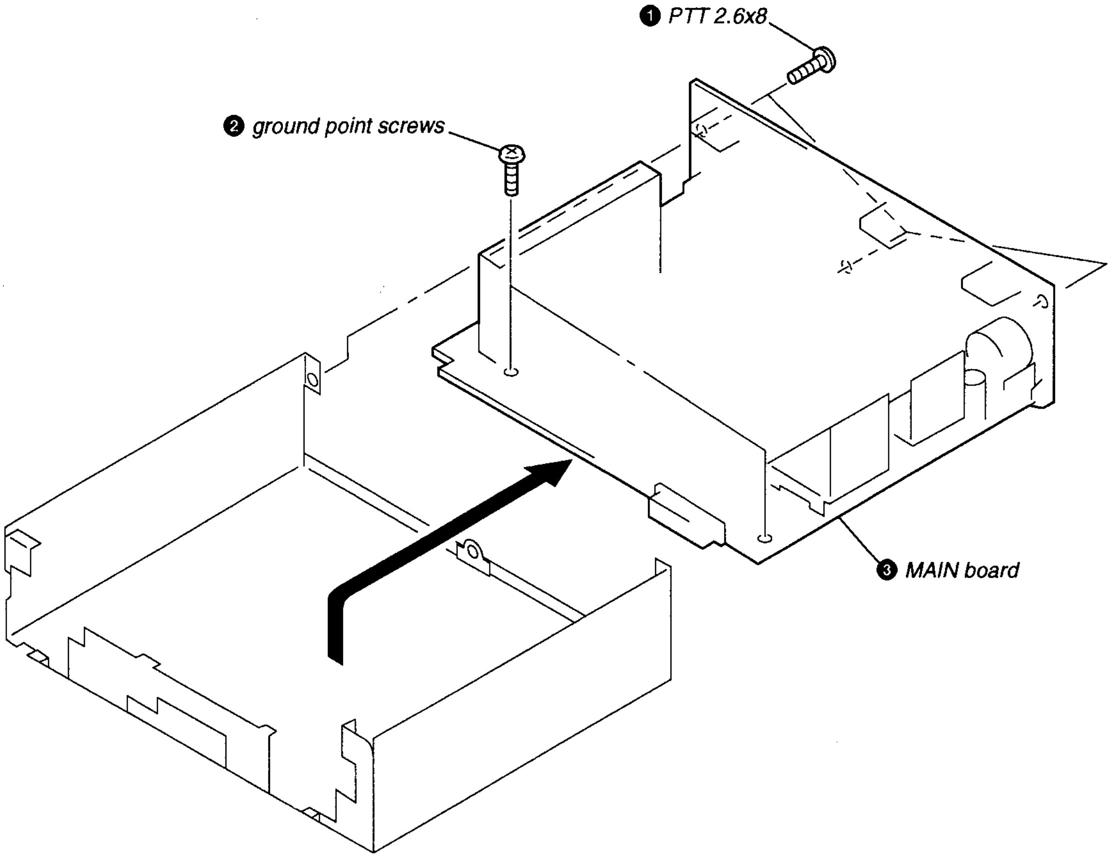
❸ sub panel
❶ PTT 2.6x6
❷ PTT 2.6x6

2-4. CD MECHANISM BLOCK

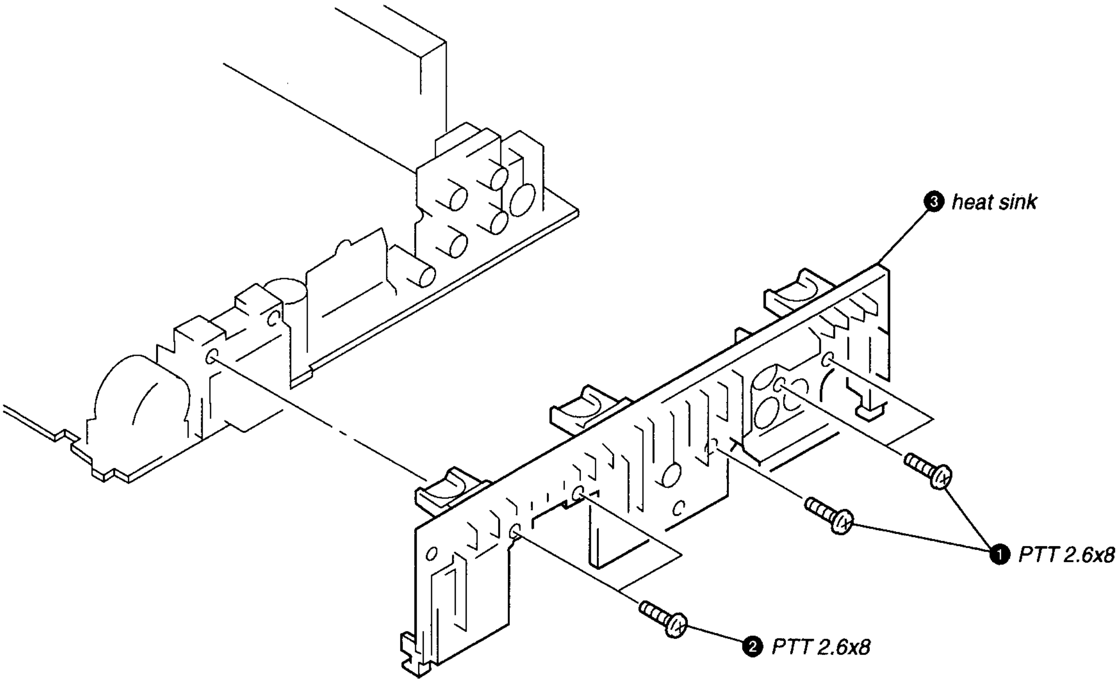


❶ PTT 2.6x8
❻ PTT 2.6x5
❽ bracket (M/D)
❷ PTT 2.6x8
❺ CD mechanism block
❼ PTT 2.6x5
❹ CNJ701
❸ PTT 2.6x5

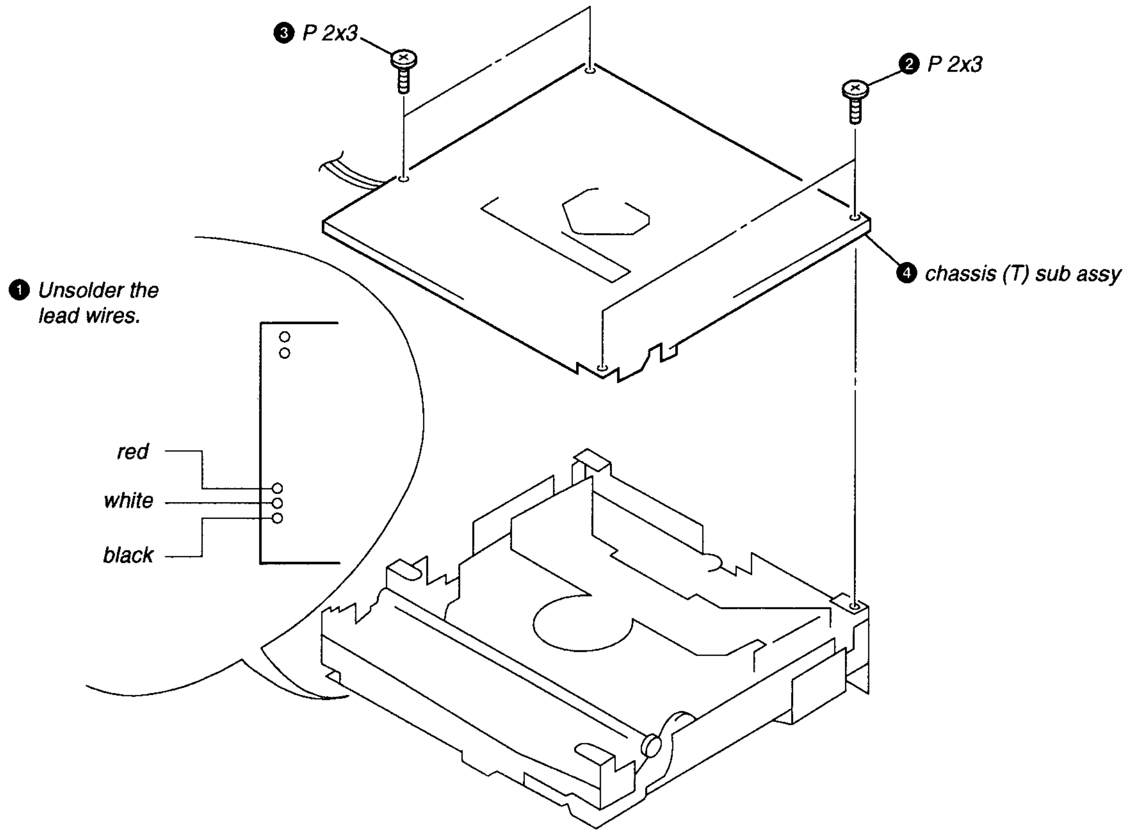
2-5. MAIN BOARD


❶ PTT 2.6x8
❷ ground point screws
❸ MAIN board

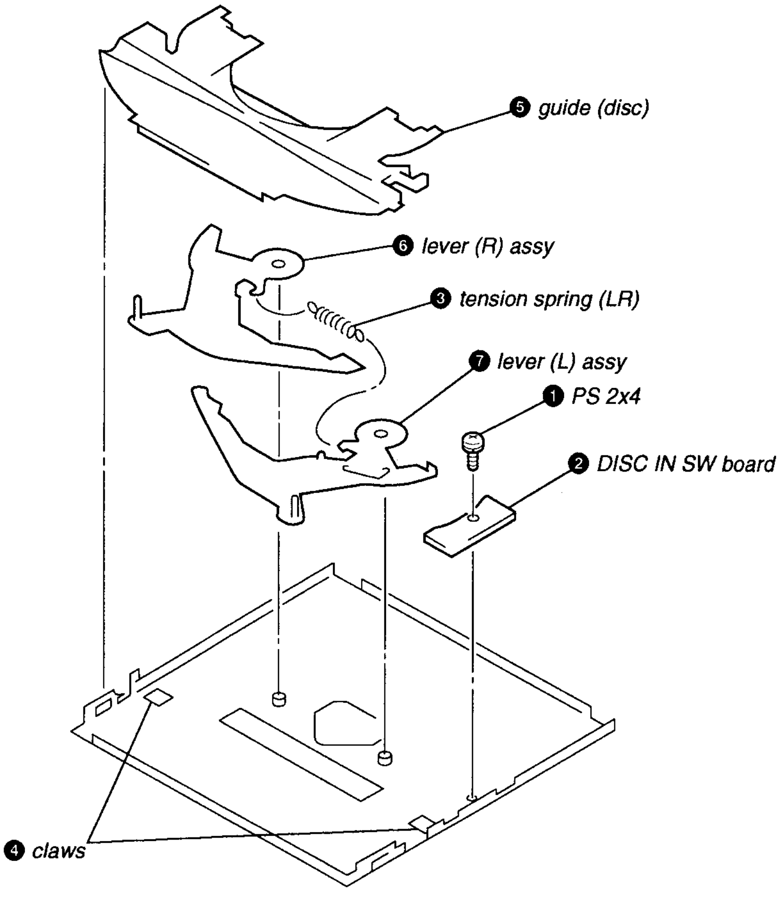
2-6. HEAT SINK


❸ heat sink
❶ PTT 2.6x8
❷ PTT 2.6x8

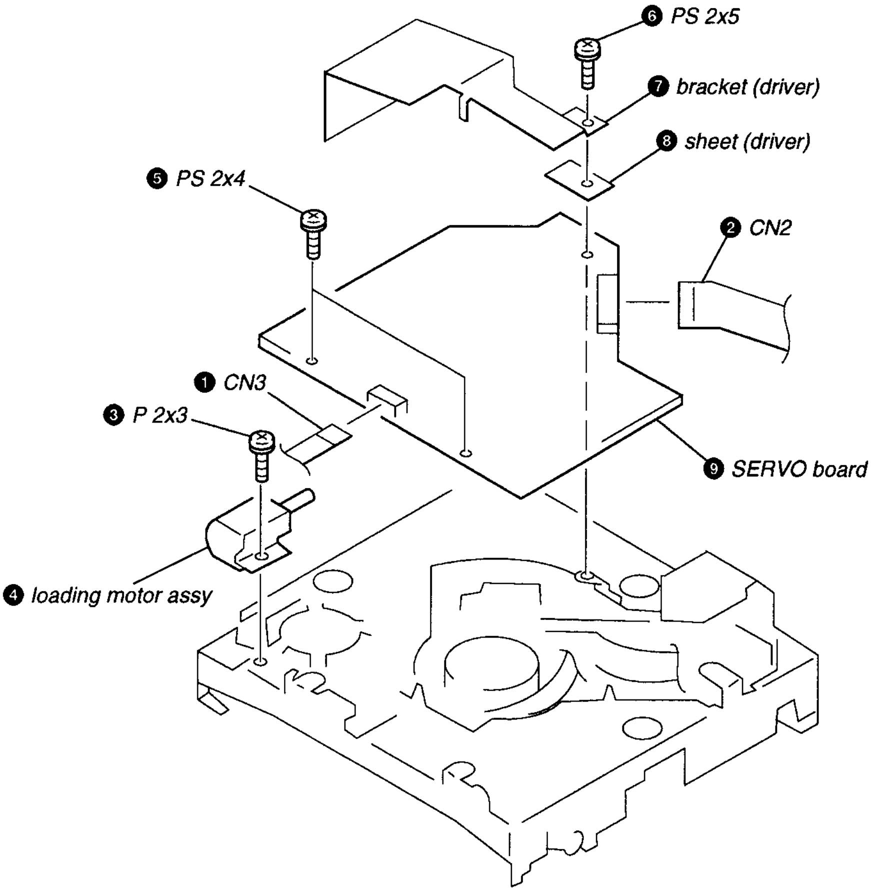
2-7. CHASSIS (T) SUB ASSY


❸ P 2x3
❷ P 2x3
❶ Unsolder the lead wires.
❹ chassis (T) sub assy
red
white
black

2-8. LEVER ASSY


❺ guide (disc)
❻ lever (R) assy
❸ tension spring (LR)
❼ lever (L) assy
❶ PS 2x4
❷ DISC IN SW board
❹ claws

2-9. SERVO BOARD


⑥ PS 2x5
⑦ bracket (driver)
⑧ sheet (driver)
⑤ PS 2x4
② CN2
① CN3
③ P 2x3
⑨ SERVO board
④ loading motor assy

2-10. ROLLER ASSY

- When installing, take note of the positions arm (roller) and washers. (Fig. 1)

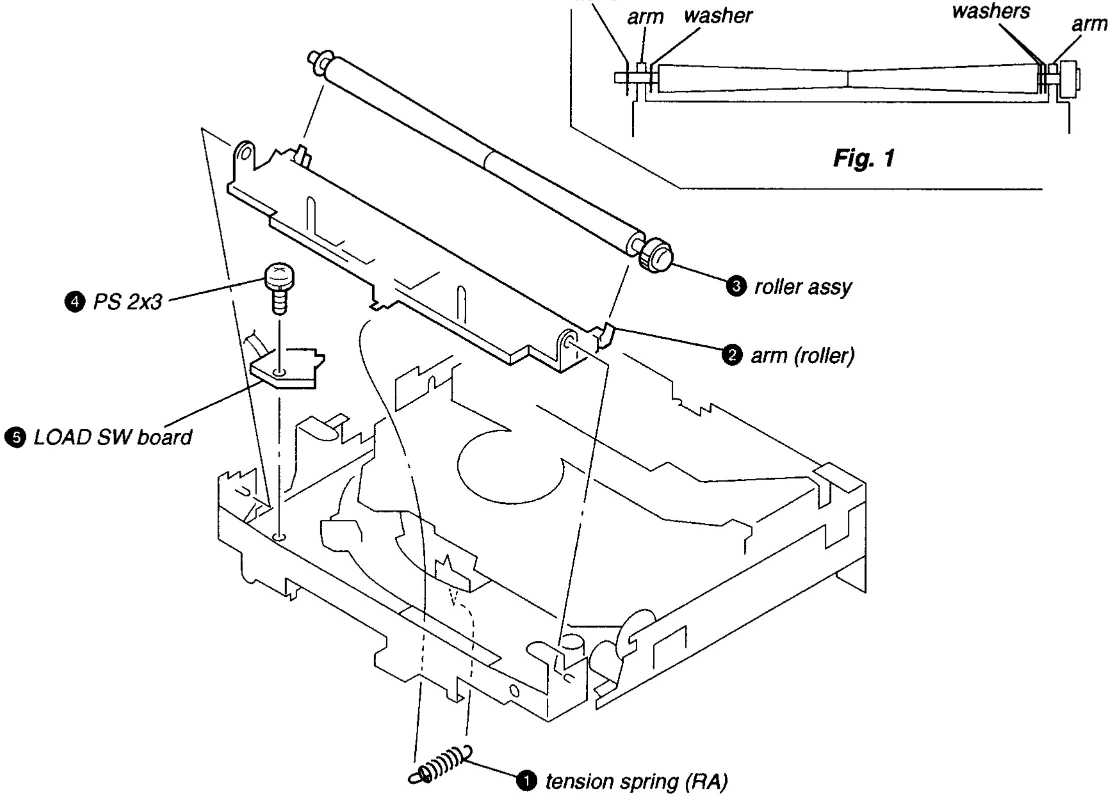
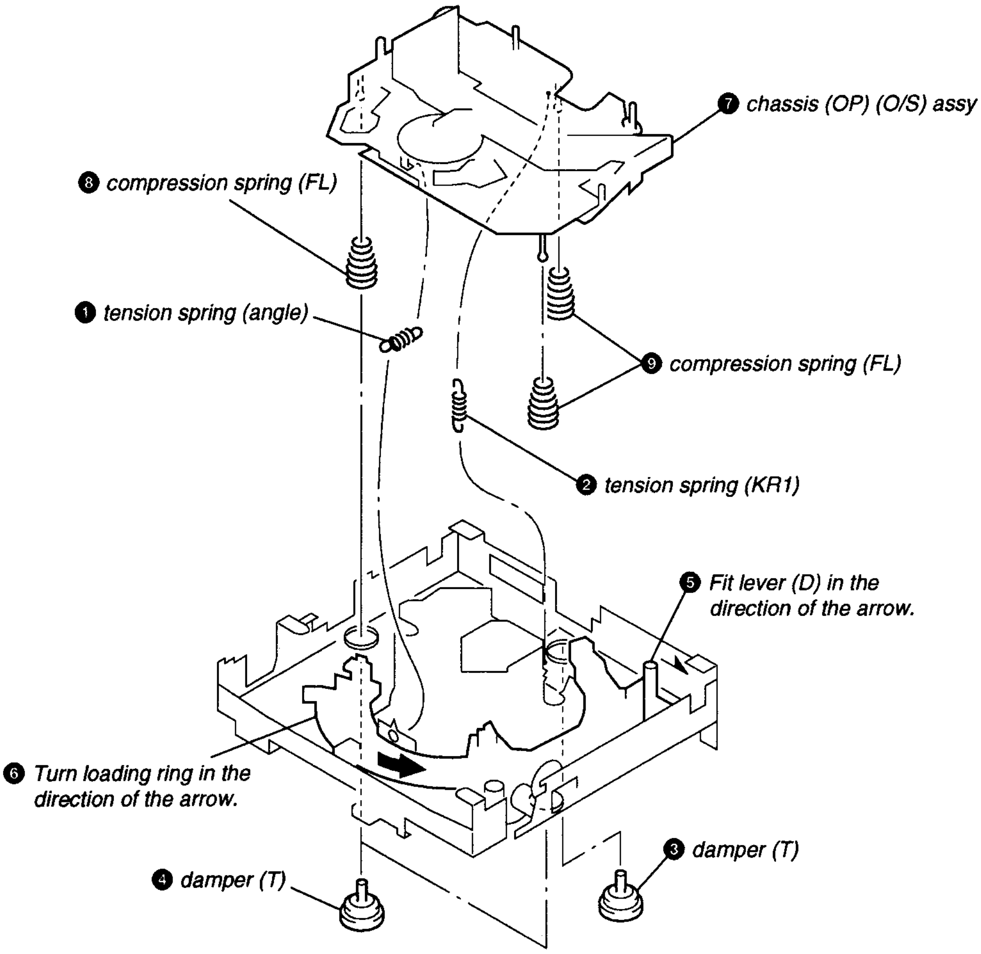
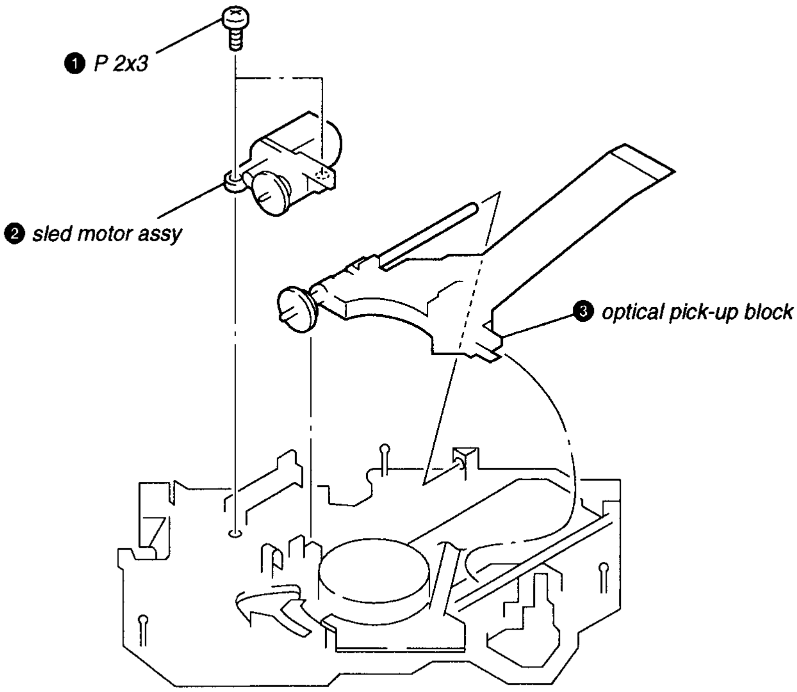

washer
arm
washer
washers
arm
③ roller assy
② arm (roller)
④ PS 2x3
⑤ LOAD SW board
① tension spring (RA)

Fig. 1

2-11. CHASSIS (OP) (O/S) ASSY


❼ chassis (OP) (O/S) assy
❽ compression spring (FL)
❶ tension spring (angle)
❾ compression spring (FL)
❷ tension spring (KR1)
❺ Fit lever (D) in the direction of the arrow.
❻ Turn loading ring in the direction of the arrow.
❸ damper (T)
❹ damper (T)

2-12. OPTICAL PICK-UP BLOCK


❶ P 2x3
❷ sled motor assy
❸ optical pick-up block

SECTION 3
ELECTRICAL ADJUSTMENTS

TEST MODE

This set have the test mode function. In the test mode, FM Auto Scan/Stop Level and MW Auto Scan/Stop Level adjustments can be performed easier than it in ordinary procedure.

<Set the Test Mode>
1. Set the "OFF" mode.
2. Push the preset 4 button.
3. Push the preset 5 button.
4. Press the preset 1 button for more than two seconds.
5. Then the display indicates all lights, the test mode is set.

<Release the Test Mode>
1. Push the OFF button.

TUNER SECTION **0 dB = 1 μV**

Cautions during repair

When the tuner unit is defective, replace it by a new one because its internal block is difficult to repair.

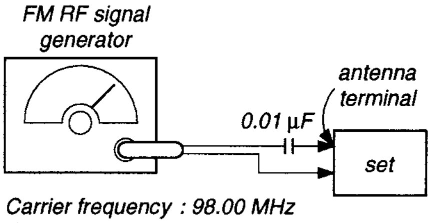
Note on Adjustment

The adjustments of tuner section, should be performed according to the following sequence.
1. FM Auto Scan/Stop Level Adjustment
2. FM Noise Focus Adjustment
3. FM Stereo Separation Adjustment
4. FM RDS S-Meter Adjustment
5. MW Auto Scan/Stop Level Adjustment

FM Auto Scan/Stop Level Adjustment

Setting :

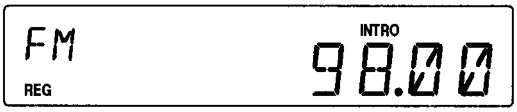
D-BASS switch : OFF
SOURCE button : FM



Carrier frequency : 98.00 MHz
Output level : 22 dB (12.6 μV)
Mode : mono
Modulation : 1 kHz, 22.5 kHz deviation (30%)

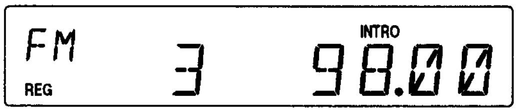
Procedure :
1. Set to the test mode.
2. Push the SOURCE button and set to FM.

Display



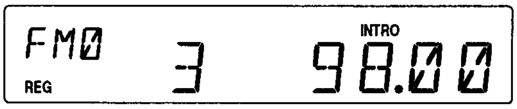
3. Push the preset 3 button.

Display



4. Adjust with the volume RV2 on TU101 so that the "FM" indication turns to "FM0" indication on the display window. But, in case of already indicated "FM0", turn the RV2 so that put out light "0" indication and adjustment.

Display

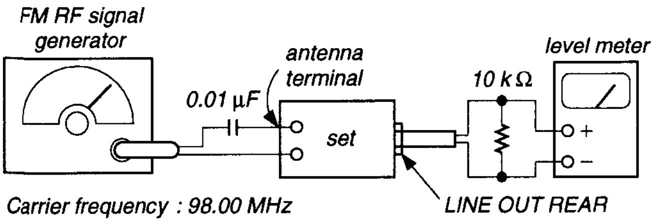


Adjustment Location : See page 22.

FM Noise Focus Adjustment

Setting :

D-BASS switch : OFF
SOURCE button : FM


FM RF signal generator
antenna terminal
level meter
0.01 µF
10 kΩ
set
+
–
LINE OUT REAR

Carrier frequency : 98.00 MHz
Output level : 60 dB (1 mV)
Mode : stereo
Modulation : 1 kHz, 75 kHz deviation (100%)

Procedure :

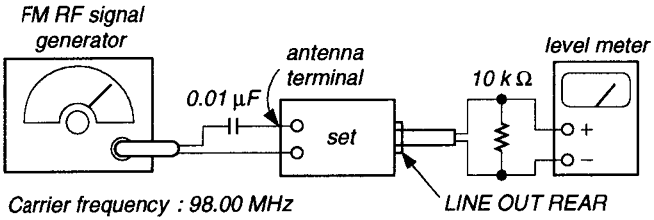
1. Tune the 98.00 MHz.
2. The then output level is supposing that (A) dB.
3. Adjust with the volume RV3 on TU101 so that the output level is (A) – 30 ± 1 dB then signal generator input set to – 20 dB.

Adjustment Location : See page 22.

FM Stereo Separation Adjustment

Setting :

D-BASS switch : OFF
SOURCE button : FM


FM RF signal generator
antenna terminal
level meter
0.01 µF
10 kΩ
set
+
–
LINE OUT REAR

Carrier frequency : 98.00 MHz
Output level : 70 dB (3.2 mV)
Mode : stereo
Modulation : main : 1 kHz, 20 kHz deviation (26.5%)
sub : 1 kHz, 20 kHz deviation (26.5%)
19 kHz pilot : 7.5 kHz deviation (10%)

Procedure :

FM stereo signal generator output channel	Level meter connection	Level meter reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV4 on TU101 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV4 on TU101 for minimum reading.

L-CH stereo separation : Ⓐ – Ⓑ
R-CH stereo separation : Ⓒ – Ⓓ
The separations of both channels should be equal.

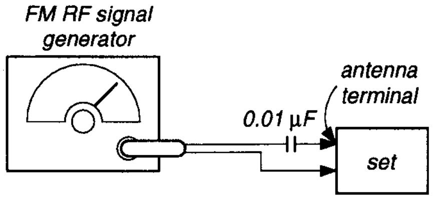
Specification : Separation more than 28 dB

Adjustment Location : See page 22.

FM RDS S-Meter Adjustment

Setting :

D-BASS switch : OFF
SOURCE button : FM


FM RF signal generator
antenna terminal
0.01 µF
set

Carrier frequency : 98.00 MHz
Output level : 35 dB (56.2 µV)
Mode : mono
Modulation : no modulation

Procedure :

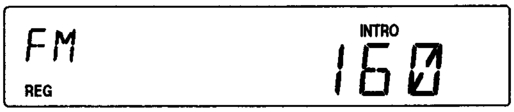
1. Set to the test mode. (See page 20.)
2. Push the SOURCE button and set to FM.

Display

FM
INTRO
REG
98.00

3. Push the preset 6 button.
4. Adjust RV101 so that the display indication is "160".

Display


FM
INTRO
REG
160

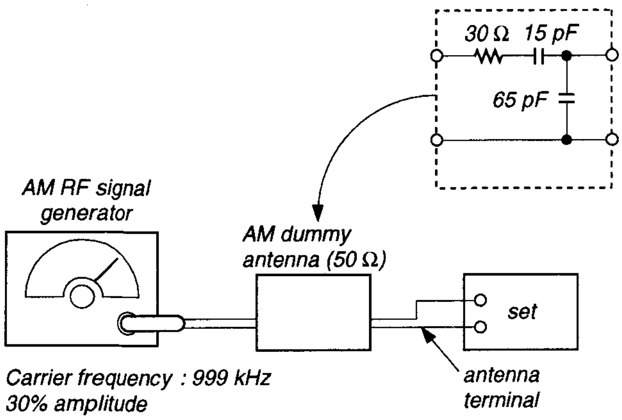
Specification : Display indication : 158 to 162.

Adjustment Location : See page 22.

MW Auto Scan/Stop Level Adjustment

Setting :

D-BASS switch : OFF
SOURCE → MODE button : MW



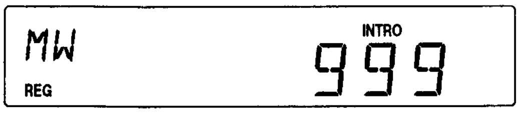
30 Ω
15 pF
65 pF
AM RF signal generator
AM dummy antenna (50 Ω)
set
antenna terminal

Carrier frequency : 999 kHz
30% amplitude modulation by 1 kHz signal
output level : 33 dB (44.7 μV)

Procedure :

1. Set to the test mode. (See page 20.)
2. Push the SOURCE button.
3. Push the MODE button and set to MW.

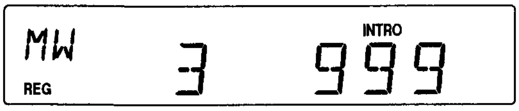
Display



MW
REG
INTRO
999

4. Push the preset 3 button.

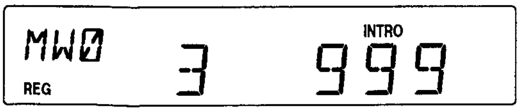
Display



MW
REG
3
INTRO
999

5. Adjust with the volume RV1 on TU101 so that the "MW" indication turns to "MW0" indication on the display window. But, in case of already indicated "MW0", turn the RV1 so that put out light "0" indication and adjustment.

Display

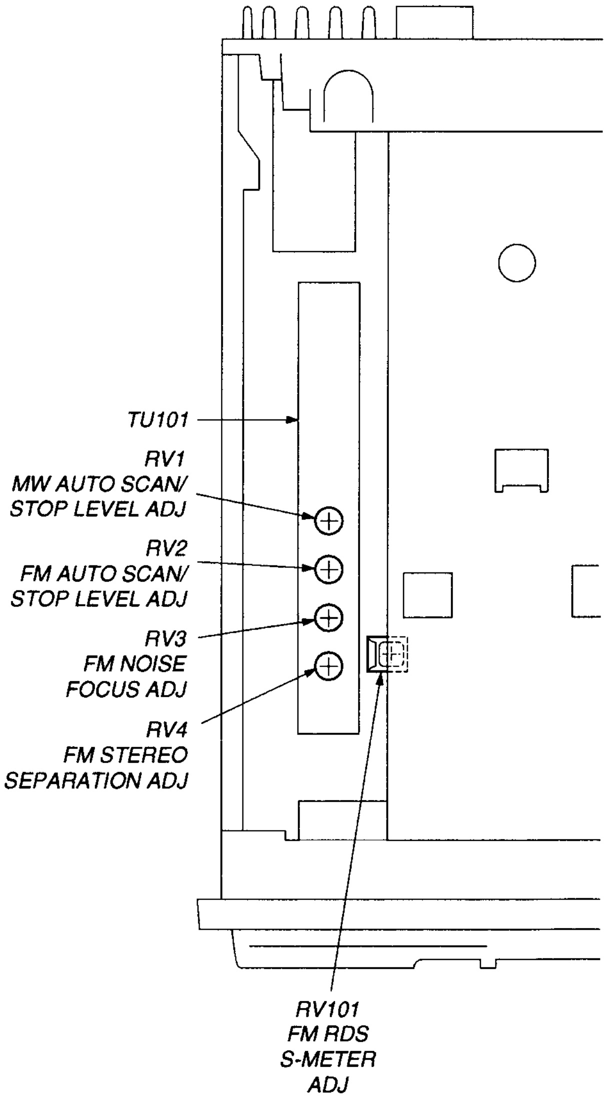


MW0
REG
3
INTRO
999

Adjustment Location : tuner unit (TU101)

Adjustment Location : tuner unit (TU101)

– set upper view –



TU101
RV1
MW AUTO SCAN/ STOP LEVEL ADJ
RV2
FM AUTO SCAN/ STOP LEVEL ADJ
RV3
FM NOISE FOCUS ADJ
RV4
FM STEREO SEPARATION ADJ
RV101
FM RDS S-METER ADJ

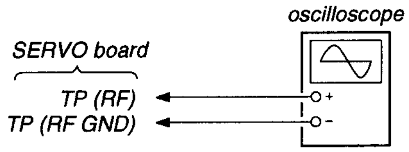
CD SECTION

Note :

1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10 MΩ impedance.
4. Clean an objective lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

Focus Bias Adjustment

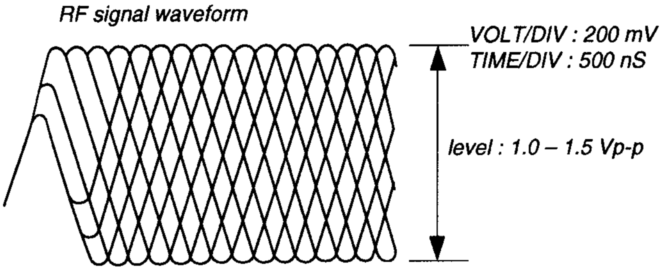
Setting : This adjustment is performed with the set placed horizontally.



Procedure :

1. Connect an oscilloscope between TP (RF) and TP (RF GND) on the SERVO board.
2. Connect the power supply.
3. Push the RESET button (S502) on the MAIN board.
4. Insert the disc (YEDS-18) and playback.
5. Adjust RV1 so that the oscilloscope waveform is clear and check RF signal level is correct or not.

Note : Clear RF signal waveform means that the sharp "◇" can be clearly distinguished at the center of the waveform.



- When observing the eye pattern, set the oscilloscope to AC range and raise the vertical sensitivity so that it may be easily seen.

Adjustment Location : servo board

Focus Gain Adjustment (Coarse adjustment)

This adjustment is not required unless the following parts are replaced:

- Optical pick-up
- RV4

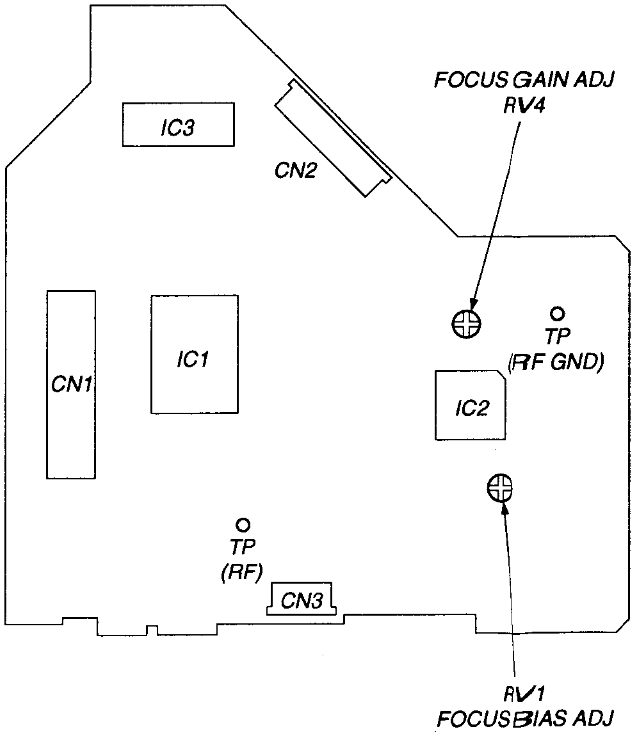
Procedure :

1. Set RV4 to the standard position. (mechanical center)
2. Check whether operation noise (while noise type) caused by the 2-axis device (lens section of the optical pick-up) is abnormally loud.
   If the operation noise is too loud, turn RV4 slightly counter-clockwise.

- If the gain is too low :
  Focus does not function and no music is selected.
- If the gain is too high :
  Noise caused by scratches and dust is heard and the operation becomes unstable.

Adjustment Location : servo board

Adjustment Location : servo board (component side)



SECTION 4
DIAGRAMS

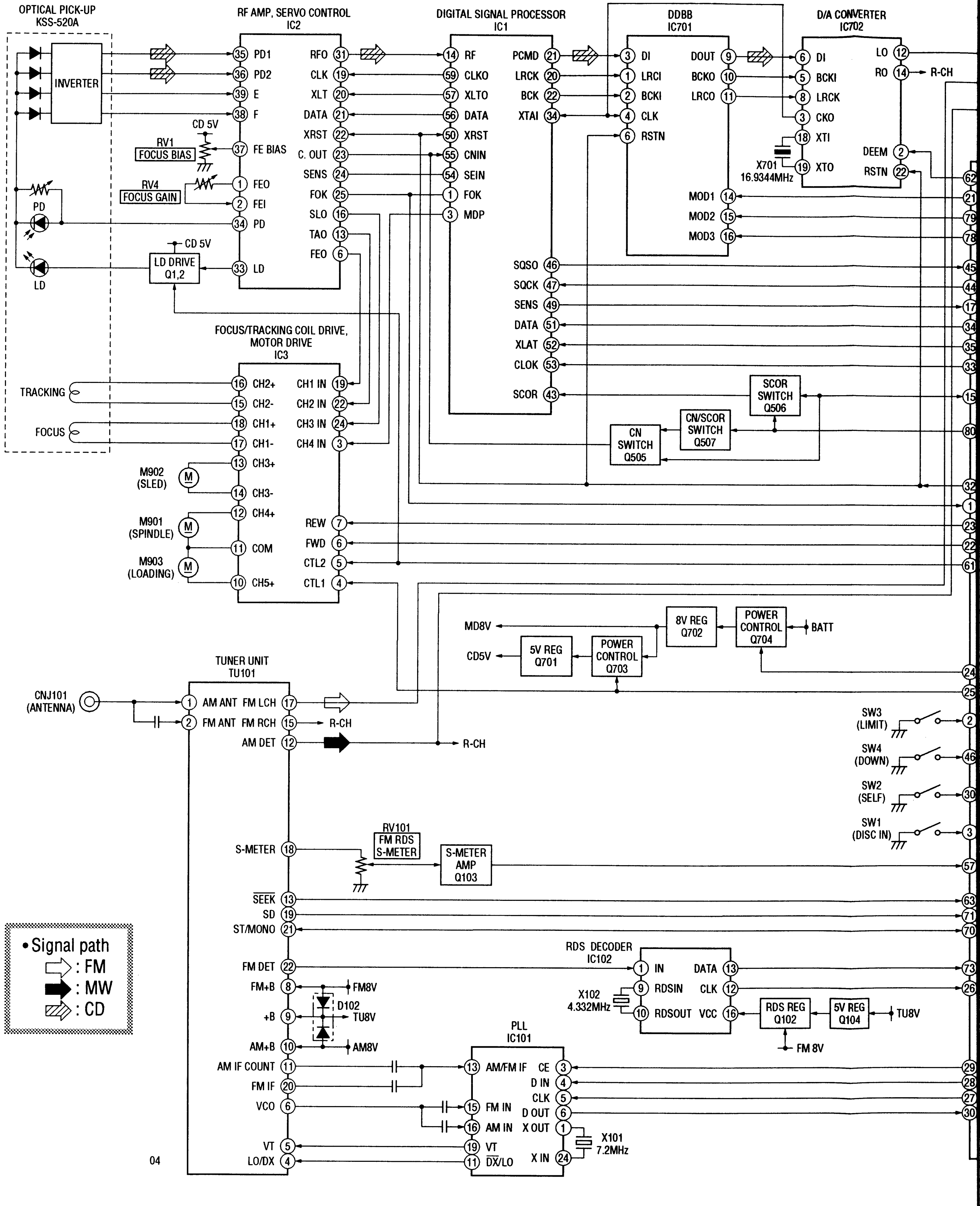
4-1. IC PIN DESCRIPTION

• IC501 MN1886426SD (SYSTEM CONTROL)

Pin No.	Pin Name	I/O	Pin Description
1	F OK	I	Focus signal detection input
2	L SW	I	Sled limit detection switch input
3	IN SW	I	Disc insert detection input
4	ILLON	O	Illumination power control output
5	PW ON	O	System power control output
6	RC IN1	I	Rotary commander shift input
7	VDD	—	Power supply (+5 V)
8	OSCIN	I	Ceramic oscillator connection input pin (8 MHz)
9	OSCOUT	O	Ceramic oscillator connection output pin (8 MHz)
10	GND	—	GND
11	XT IN	I	Sub crystal (for clock) oscillator connection input pin (32.768 kHz)
12	XT OUT	O	Sub crystal (for clock) oscillator connection output pin (32.768 kHz)
13	EX2	I	Connect to GND.
14	RESET	I	Reset input ("L" : Reset)
15	CNIN, SCOR	I	CNIN and SCOR common port
16	BU IN	I	Back-up detection input
17	SENS	I	SENS input from CXD2507AQ.
18	VOLCE	O	Electric volume serial chip enable output
19	VOLSO	O	Electric volume serial data output
20	VOLCKO	O	Electric volume serial clock output
21	DBCNT1	O	D-BASS level select port
22	LM EJ	O	Loading motor control output (Eject direction)
23	LM LOD	O	Loading motor control output (Loading direction)
24	CDMON	O	Power control output for CD mechanism deck drive.
25	CD ON/CTL1	O	CD ON and CTL1 common port
26	RDSCKI	I	RDS-CLK input
27	PLLCKO	O	PLL CLK output
28	PLLSO	O	PLL DATA output
29	PLLCE	O	PLL CE output
30	SELF SW	I	Disc self store detection input
31	KEYAC	I	Key input acknowledge
32	CD RST	O	CD signal process IC reset output
33	CD CKO	O	CD signal process serial clock output
34	CD SO	O	CD signal process serial data output
35	CD LAT	O	CD signal process latch output
36	ACCIN	I	Accessory power detection input
37	PLLSI	I	PLL DATA input
38	BEEP	O	Buzzer control output
39	LCDCKO	O	LCD serial clock output
40	LCDSO	O	LCD serial data output
41	LCDINH	O	LCD blank display control output
42	LCDCE	O	LCD chip enable output
43	GFS	I	GFS signal detection input
44	SQ CKO	O	SUBQ clock output
45	SQ SI	I	SUBQ data input
46	D SW	I	DOWN switch detection input

Pin No.	Pin Name	I/O	Pin Description
47	VDD	—	Power supply (+5 V)
48	AVDD	—	Power supply for AD conversion input. (+5 V)
49	AVREF+	—	Reference voltage input (+ side) for AD conversion input. (+5 V)
50	KEYIN1	I	Key input
51	KEYIN0	I	Key input
52	KEYIN2	I	Key input
53	$\overline{\text{TBTGSEL}}$	I	Automatic adjustment process with/without setting port
54	DSTSEL	I	Destination select setting port
55	RC IN0	I	Rotary commander input
56	NIL	I	Connect to GND.
57	VSM	I	FM and AM common signal meter A/D conversion input
58	AVREF-	—	Reference voltage input (- side) for AD conversion input. (GND)
59	AVSS	—	GND for AD conversion input.
60	GND	—	GND
61	$\overline{\text{LD ON}}$, CTL2	O	LD ON and CTL2 common port
62	EMPH O	O	Emphasis control output
63	$\overline{\text{SEKOUT}}$	O	SEEK OUT output
64	TUNON	O	TUNER power control output
65	FM ON	O	FM power control output
66	MUTE	O	System mute output
67	NCO	—	Not used.
68	$\overline{\text{AD ON}}$	O	Power control output for AD conversion.
69	$\overline{\text{NOSESW}}$	I	Front panel connect detection input ("L" : with front panel, "H" : without front panel)
70	$\overline{\text{ST}}$	I/O	Used for both STEREO indicator display input and force MONO output. (FM)
71	SD IN	I	Signal detector input
72	PW SEL	I	Power select initial setting input
73	RDSSI	I	RDS-DATA input
74	TUNMUT	O	TUNER MUTE output
75	$\overline{\text{AMPMUT}}$	O	Power amplifier mute control output
76	AMPON	O	Power amplifier power control output
77	$\overline{\text{TEST}}$	I	Test mode setting input
78	DBCNT3	O	D-BASS level select port
79	DBCNT2	O	D-BASS level select port
80	INTSEL0	O	CNIN and SCOR signal select control port ("H" : CNIN, "L" : SCOR)

4-2. BLOCK DIAGRAM


OPTICAL PICK-UP KSS-520A
INVERTER
PD
LD
TRACKING
FOCUS
RF AMP, SERVO CONTROL IC2
PD1
PD2
E
F
FE BIAS
FEO
FEI
PD
LD
RFO
CLK
XLT
DATA
XRST
C. OUT
SENS
FOK
SLO
TAO
FEO
CD 5V
RV1 FOCUS BIAS
RV4 FOCUS GAIN
LD DRIVE Q1,2
DIGITAL SIGNAL PROCESSOR IC1
RF
CLKO
XLTO
DATA
XRST
CNIN
SEIN
FOK
MDP
PCMD
LRCK
BCK
XTAI
SQSO
SQCK
SENS
DATA
XLAT
CLOK
SCOR
DDBB IC701
DI
LRCI
BCKI
CLK
RSTN
DOUT
BCKO
LRCO
MOD1
MOD2
MOD3
D/A CONVERTER IC702
DI
BCKI
LRCK
CKO
XTI
XTO
LO
RO
R-CH
DEEM
RSTN
X701 16.9344MHz
FOCUS/TRACKING COIL DRIVE, MOTOR DRIVE IC3
CH2+
CH2-
CH1+
CH1-
CH3+
CH3-
CH4+
COM
CH5+
CH1 IN
CH2 IN
CH3 IN
CH4 IN
REW
FWD
CTL2
CTL1
M902 (SLED)
M901 (SPINDLE)
M903 (LOADING)
SCOR SWITCH Q506
CN/SCOR SWITCH Q507
CN SWITCH Q505
MD8V
CD5V
5V REG Q701
POWER CONTROL Q703
8V REG Q702
POWER CONTROL Q704
BATT
TUNER UNIT TU101
CNJ101 (ANTENNA)
AM ANT
FM ANT
FM LCH
FM RCH
AM DET
R-CH
R-CH
S-METER
$\overline{\text{SEEK}}$
SD
ST/MONO
FM DET
FM+B
+B
AM+B
AM IF COUNT
FM IF
VCO
VT
LO/DX
FM8V
D102
TU8V
AM8V
RV101 FM RDS S-METER
S-METER AMP Q103
SW3 (LIMIT)
SW4 (DOWN)
SW2 (SELF)
SW1 (DISC IN)
RDS DECODER IC102
IN
RDSIN
RDSOUT
DATA
CLK
VCC
X102 4.332MHz
RDS REG Q102
5V REG Q104
TU8V
FM 8V
PLL IC101
AM/FM IF
FM IN
AM IN
VT
$\overline{\text{DX}}$/LO
CE
D IN
CLK
D OUT
X OUT
X IN
X101 7.2MHz
04
• Signal path
: FM
: MW
: CD

t. (+5 V)

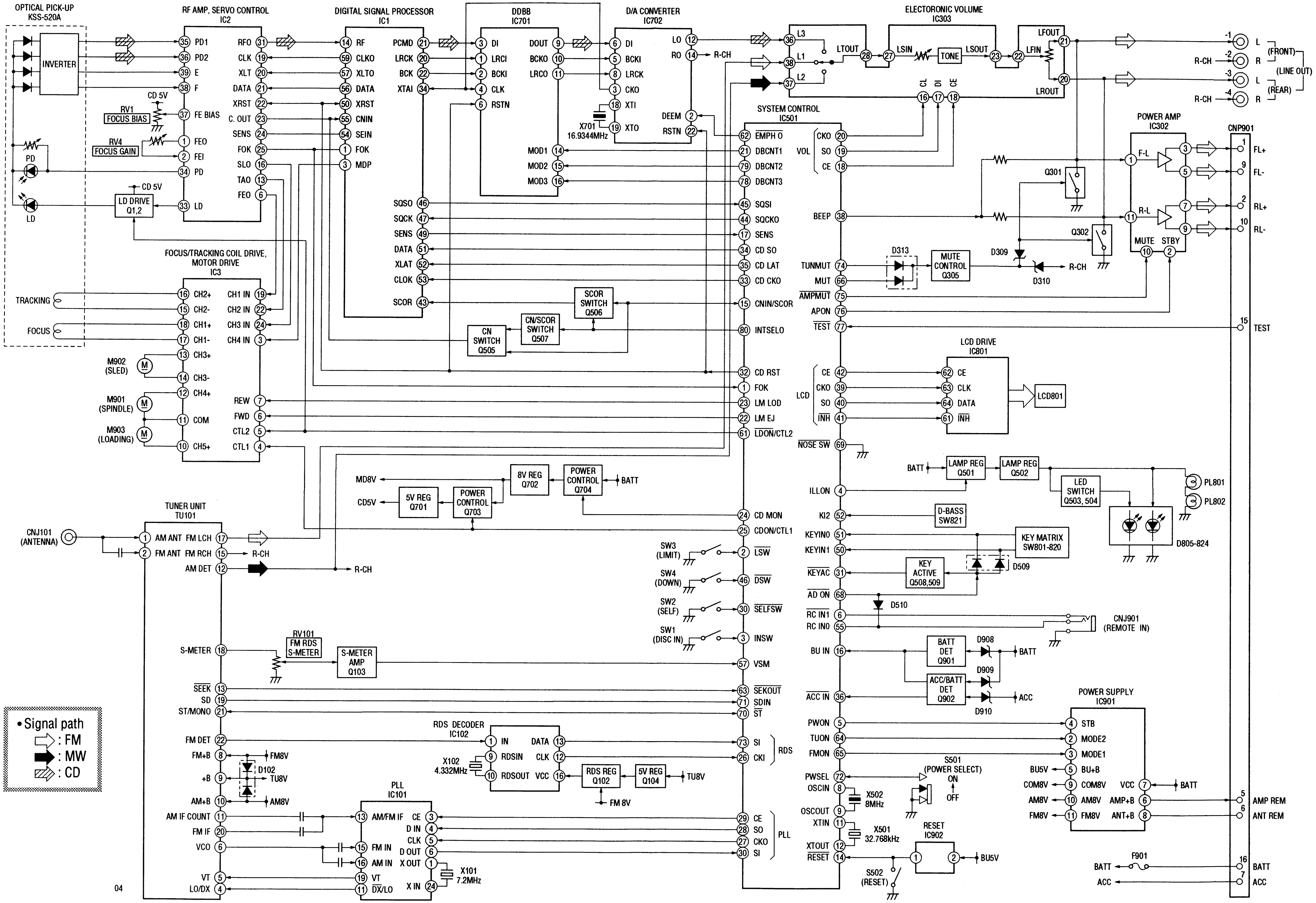
. (GND)

nel, “H” : without front panel)

MONO output. (FM)

, “L” : SCOR)

4-2. BLOCK DIAGRAM

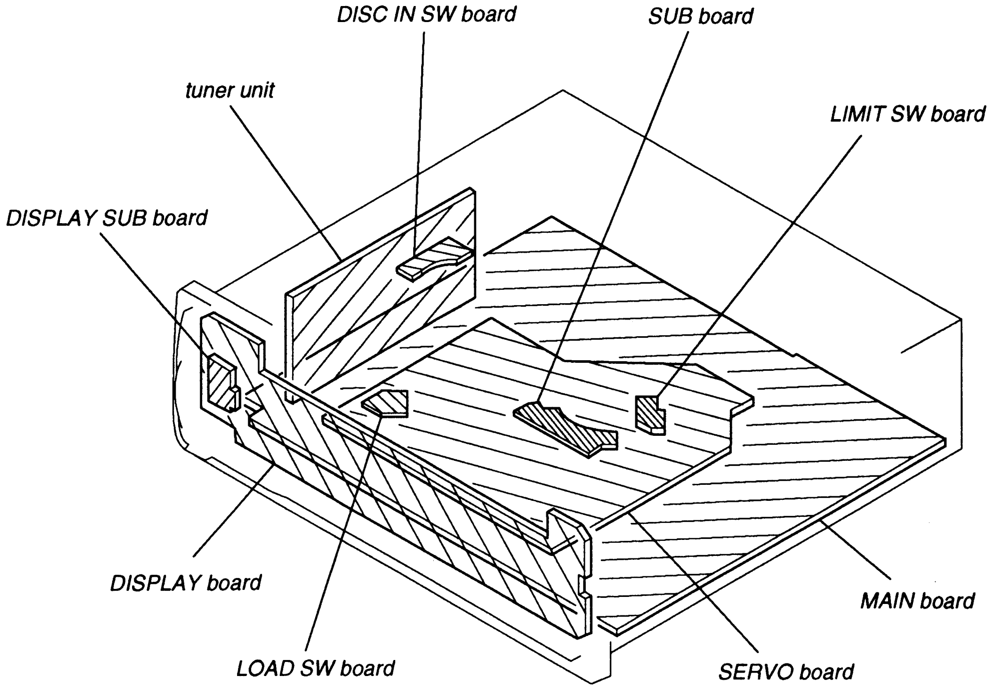

OPTICAL PICK-UP KSS-520A
INVERTER
PD
LD
TRACKING
FOCUS
RF AMP, SERVO CONTROL IC2
PD1 PD2 E F FE BIAS FEO FEI PD LD
RFO CLK XLT DATA XRST C. OUT SENS FOK SLO TAO FEO
RV1 FOCUS BIAS
RV4 FOCUS GAIN
CD 5V
LD DRIVE Q1,2
FOCUS/TRACKING COIL DRIVE, MOTOR DRIVE IC3
CH2+ CH2- CH1+ CH1- CH3+ CH3- CH4+ COM CH5+
CH1 IN CH2 IN CH3 IN CH4 IN REW FWD CTL2 CTL1
M902 (SLED)
M901 (SPINDLE)
M903 (LOADING)
DIGITAL SIGNAL PROCESSOR IC1
RF CLKO XLTO DATA XRST CNIN SEIN FOK MDP
PCMD LRCK BCK XTAI
SQSO SQCK SENS DATA XLAT CLOK SCOR
DDBB IC701
DI LRCI BCKI CLK RSTN DOUT BCKO LRCO MOD1 MOD2 MOD3
X701 16.9344MHz
D/A CONVERTER IC702
DI BCKI LRCK CKO XTI XTO LO RO DEEM RSTN
SCOR SWITCH Q506
CN/SCOR SWITCH Q507
CN SWITCH Q505
ELECTORONIC VOLUME IC303
L3 L1 L2 LTOUT LSIN TONE LSOUT LFIN LFOUT LROUT
CL DI CE
L (FRONT) R
L (REAR) R
(LINE OUT)
R-CH
SYSTEM CONTROL IC501
EMPH 0 DBCNT1 DBCNT2 DBCNT3 SQSI SQCKO SENS CD SO CD LAT CD CKO CNIN/SCOR INTSELO CD RST FOK LM LOD LM EJ LDON/CTL2 CD MON CDON/CTL1 LSW DSW SELFSW INSW VSM SEKOUT SDIN ST SI CKI CE SO CKO SI
VOL CKO SO CE
BEEP TUNMUT MUT AMPMUT APON TEST
LCD CE CKO SO INH
NOSE SW ILLON KI2 KEYIN0 KEYIN1 KEYAC AD ON RC IN1 RC IN0 BU IN ACC IN PWON TUON FMON PWSEL OSCIN OSCOUT XTIN XTOUT RESET
RDS PLL
POWER AMP IC302
F-L R-L MUTE STBY
Q301 Q302
D313 MUTE CONTROL Q305
D309 D310
CNP901
FL+ FL- RL+ RL- TEST AMP REM ANT REM BATT ACC
LCD DRIVE IC801
CE CLK DATA INH
LCD801
BATT LAMP REG Q501 LAMP REG Q502
LED SWITCH Q503, 504
PL801 PL802
D805-824
D-BASS SW821
KEY MATRIX SW801-820
KEY ACTIVE Q508,509
D509 D510
CNJ901 (REMOTE IN)
BATT DET Q901 D908
ACC/BATT DET Q902 D909 D910
POWER SUPPLY IC901
STB MODE2 MODE1 BU+B COM8V AM8V FM8V VCC AMP+B ANT+B
BU5V COM8V AM8V FM8V
S501 (POWER SELECT) ON OFF
X502 8MHz
X501 32.768kHz
RESET IC902
S502 (RESET)
F901
MD8V CD5V
8V REG Q702
POWER CONTROL Q704
5V REG Q701
POWER CONTROL Q703
SW3 (LIMIT) SW4 (DOWN) SW2 (SELF) SW1 (DISC IN)
CNJ101 (ANTENNA)
TUNER UNIT TU101
AM ANT FM ANT FM LCH FM RCH AM DET
S-METER SEEK SD ST/MONO FM DET FM+B +B AM+B AM IF COUNT FM IF VCO VT LO/DX
RV101 FM RDS S-METER
S-METER AMP Q103
D102 FM8V TU8V AM8V
RDS DECODER IC102
IN RDSIN RDSOUT DATA CLK VCC
X102 4.332MHz
RDS REG Q102
5V REG Q104
FM 8V
PLL IC101
AM/FM IF FM IN AM IN VT DX/LO CE D IN CLK D OUT X OUT X IN
X101 7.2MHz
04
•Signal path
: FM
: MW
: CD

- **Semiconductor Location**

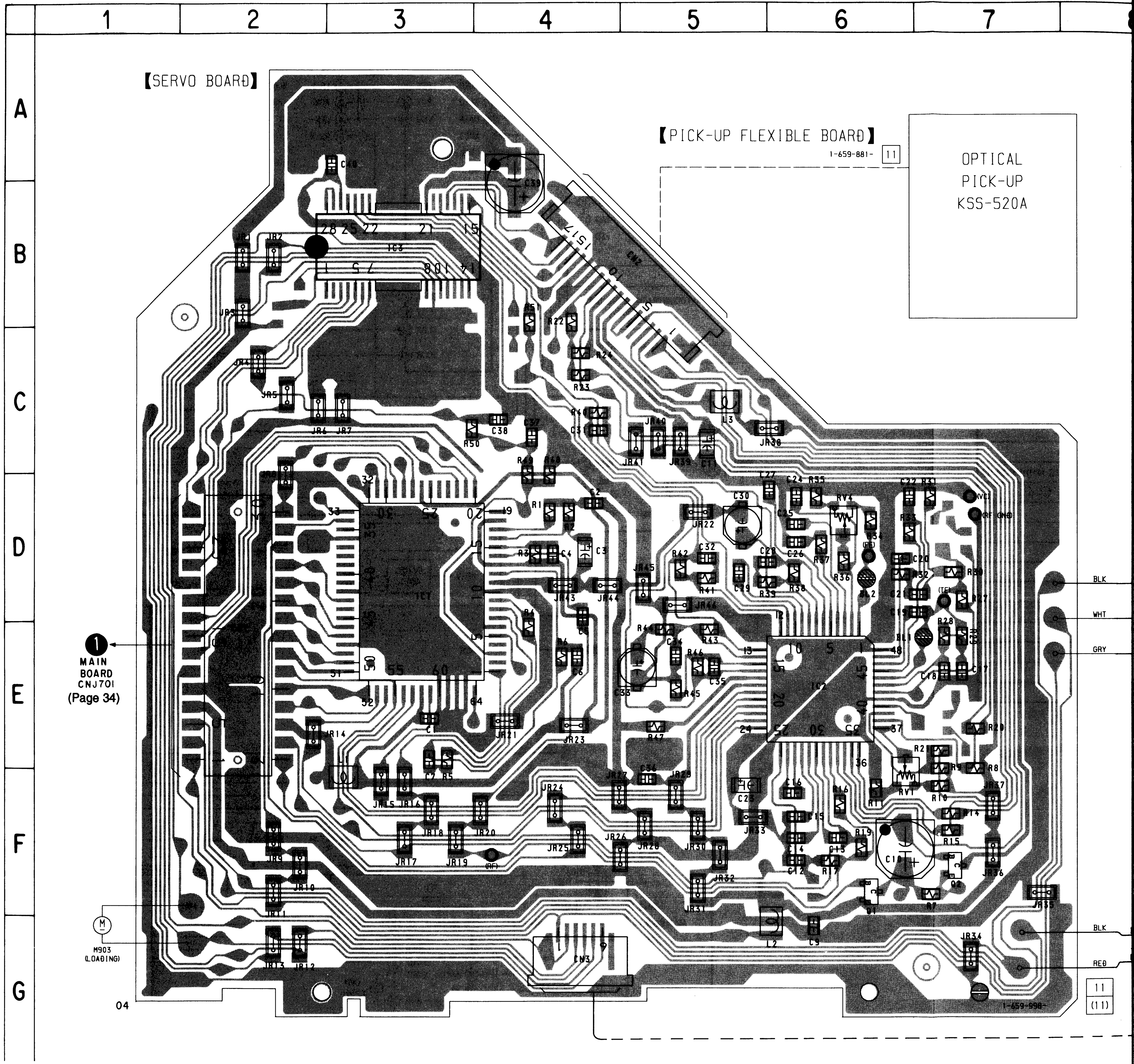
Ref. No.	Location
IC1	D-3
IC2	E-6
IC3	B-3
Q1	F-6
Q2	F-7

Note:
- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ▨ : Pattern from the side which enables seeing.

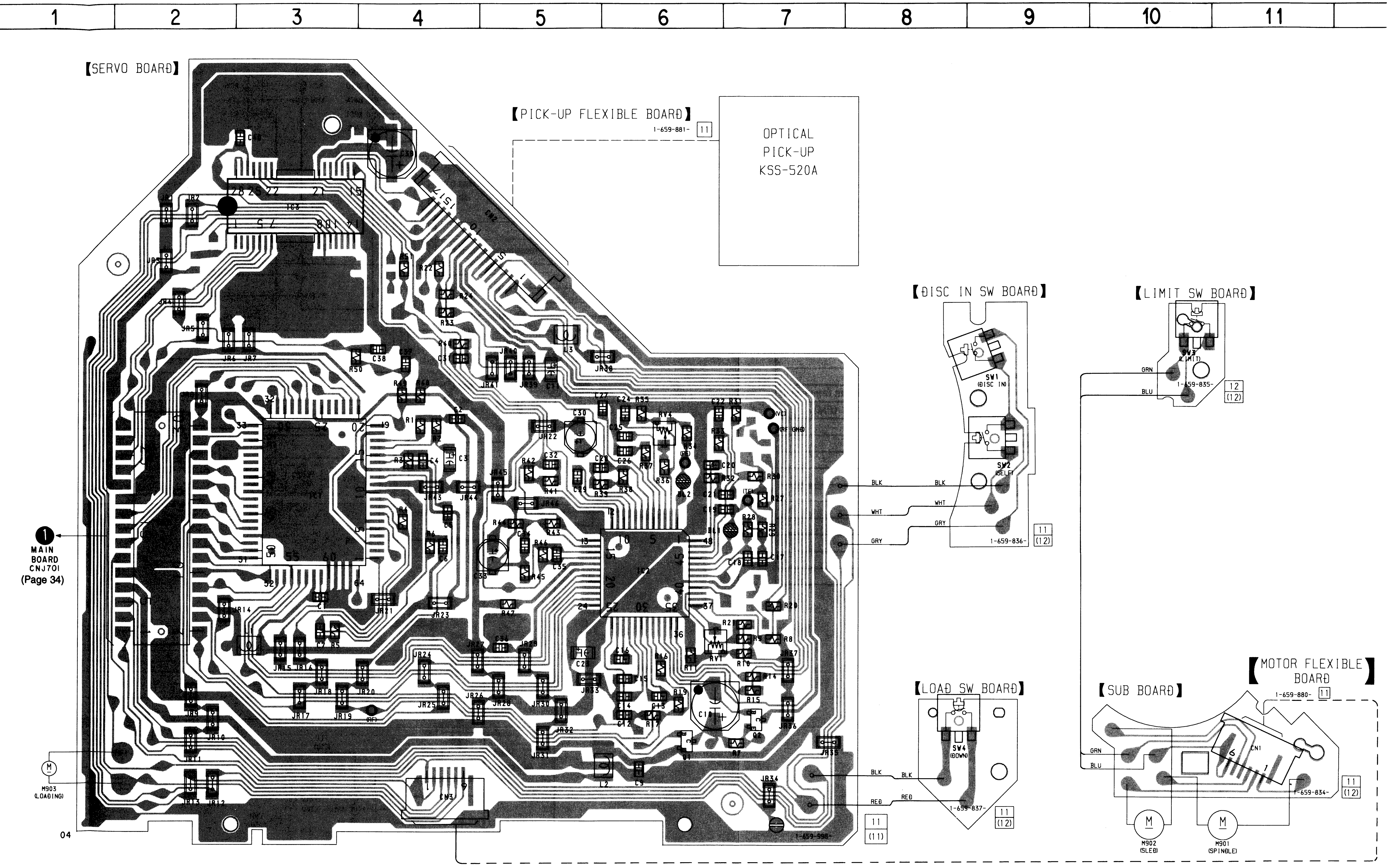
4-3. CIRCUIT BOARDS LOCATION


DISC IN SW board
SUB board
tuner unit
LIMIT SW board
DISPLAY SUB board
DISPLAY board
MAIN board
LOAD SW board
SERVO board

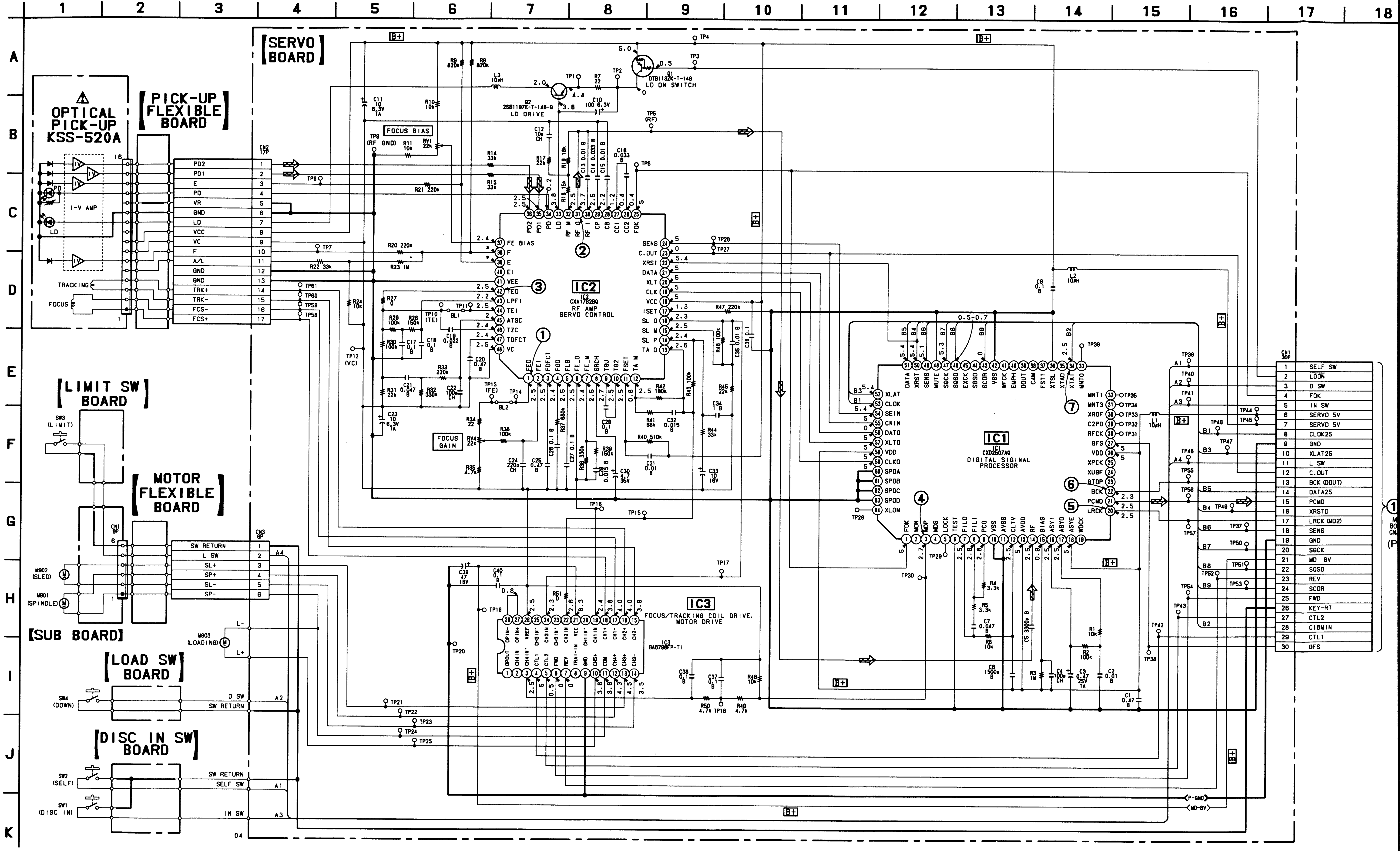
4-4. PRINTED WIRING BOARDS — CD MECHANISM SECTION —


1
2
3
4
5
6
7
A
B
C
D
E
F
G
【SERVO BOARD】
【PICK-UP FLEXIBLE BOARD】
1-659-881- 11
OPTICAL PICK-UP KSS-520A
❶
MAIN BOARD CNJ701
(Page 34)
M
M903 (LOADING)
04
IC1
IC2
IC3
CN2
CN3
Q1
Q2
RV1
RV4
BLK
WHT
GRY
BLK
RED
1-659-898-
11
(11)

PRINTED WIRING BOARDS — CD MECHANISM SECTION —

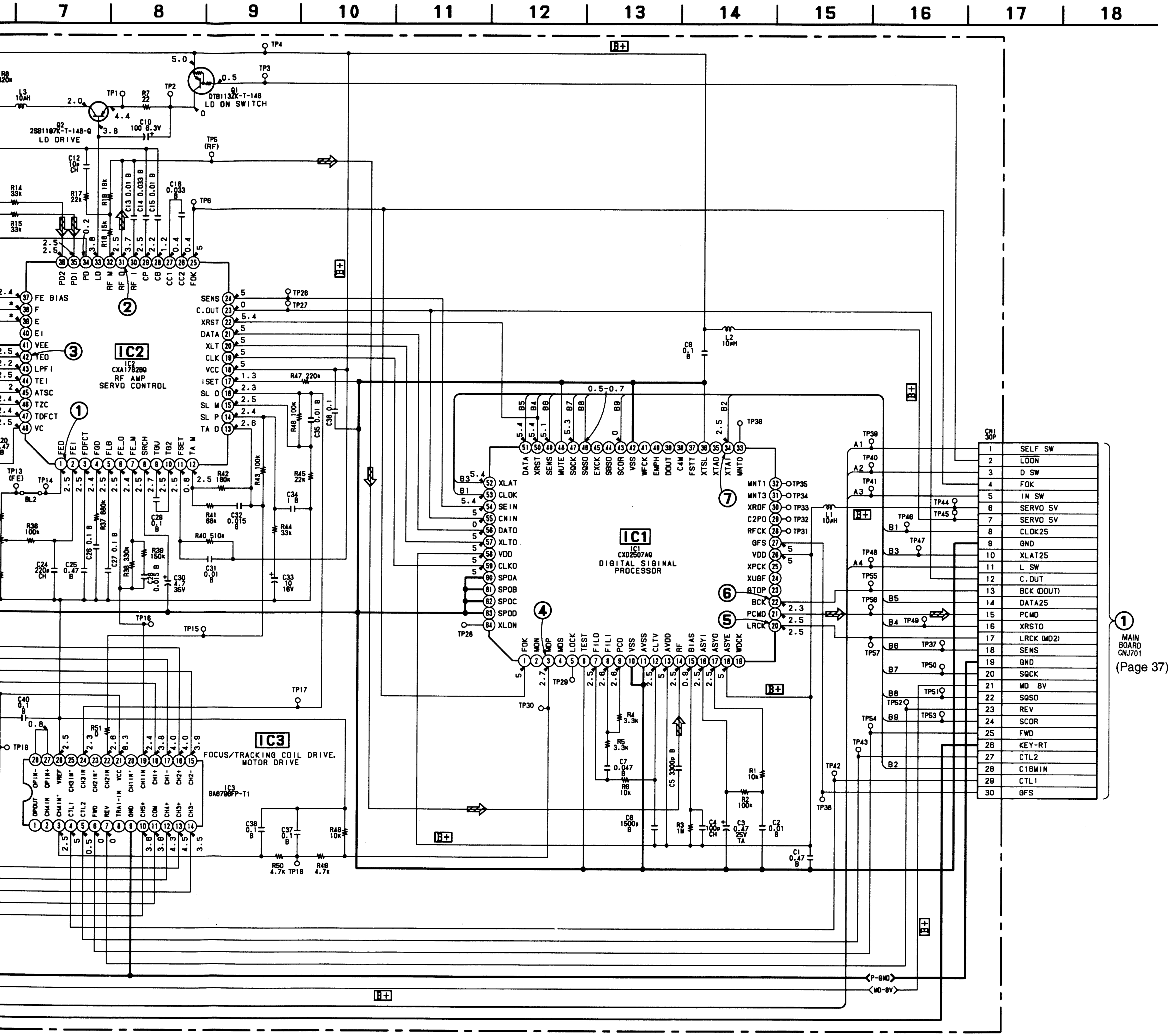

1
2
3
4
5
6
7
8
9
10
11
【SERVO BOARD】
【PICK-UP FLEXIBLE BOARD】
1-659-881- 11
OPTICAL PICK-UP KSS-520A
IC1
IC2
IC3
CN2
CN3
❶ MAIN BOARD CNJ701 (Page 34)
M903 (LOADING)
04
1-659-898-
11 (11)
【DISC IN SW BOARD】
SW1 (DISC IN)
SW2 (SELF)
BLK
WHT
GRY
1-659-836- 11 (12)
【LIMIT SW BOARD】
SW3 (LIMIT)
GRN
BLU
1-659-835- 12 (12)
【LOAD SW BOARD】
SW4 (DOWN)
BLK
RED
1-659-837- 11 (12)
【SUB BOARD】
【MOTOR FLEXIBLE BOARD】
1-659-880- 11
CN1
1-659-834- 11 (12)
M902 (SLED)
M901 (SPINDLE)

4-5. SCHEMATIC DIAGRAM — CD MECHANISM SECTION — • Refer to page 47 for IC Block Diagrams.

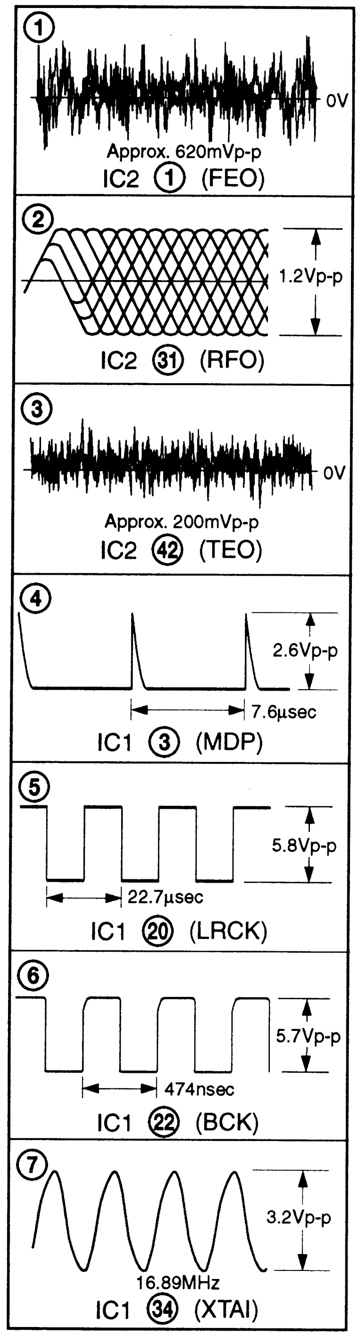


OPTICAL PICK-UP KSS-520A
PICK-UP FLEXIBLE BOARD
SERVO BOARD
LIMIT SW BOARD
MOTOR FLEXIBLE BOARD
SUB BOARD
LOAD SW BOARD
DISC IN SW BOARD
I-V AMP
TRACKING
FOCUS
SW3 (LIMIT)
M902 (SLED)
M901 (SPINDLE)
M903 (LOADING)
SW4 (DOWN)
SW2 (SELF)
SW1 (DISC IN)
IC2 CXA1782BQ RF AMP SERVO CONTROL
IC1 CXD2507AQ DIGITAL SIGNAL PROCESSOR
IC3 BA6796FP-T1 FOCUS/TRACKING COIL DRIVE, MOTOR DRIVE
Q1 DTB113ZK-T-146 LD ON SWITCH
Q2 2SB1197K-T-146-Q LD DRIVE
FOCUS BIAS
FOCUS GAIN
CN2 17P
CN3 6P
CN1 8P
CN1 30P
SELF SW
LDON
D SW
FOK
IN SW
SERVO 5V
SERVO 5V
CLOK25
GND
XLAT25
L SW
C.OUT
BCK (DOUT)
DATA25
PCMD
XRSTO
LRCK (MD2)
SENS
GND
SQCK
MD 8V
SQSO
REV
SCOR
FWD
KEY-RT
CTL2
C18MIN
CTL1
GFS
P-GND
MD-8V

for IC Block Diagrams.


7
8
9
10
11
12
13
14
15
16
17
18
IC2
CXA1782BQ
RF AMP
SERVO CONTROL
IC1
CXD2507AQ
DIGITAL SIGNAL PROCESSOR
IC3
BA6796FP-T1
FOCUS/TRACKING COIL DRIVE, MOTOR DRIVE
Q1
DTB113ZK-T-146
LD ON SWITCH
Q2
2SB1197K-T-148-Q
LD DRIVE
CN1
30P
1 SELF SW
2 LDON
3 D SW
4 FOK
5 IN SW
6 SERVO 5V
7 SERVO 5V
8 CLOK25
9 GND
10 XLAT25
11 L SW
12 C.OUT
13 BCK (DOUT)
14 DATA25
15 PCMD
16 XRSTO
17 LRCK (MD2)
18 SENS
19 GND
20 SQCK
21 MD 8V
22 SQSO
23 REV
24 SCOR
25 FWD
26 KEY-RT
27 CTL2
28 C16MIN
29 CTL1
30 GFS
①
MAIN BOARD CNJ701
(Page 37)
P-GND
MD-8V
B+

• Waveforms (MODE:PLAY)



Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¹/₄ W or less unless otherwise specified.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

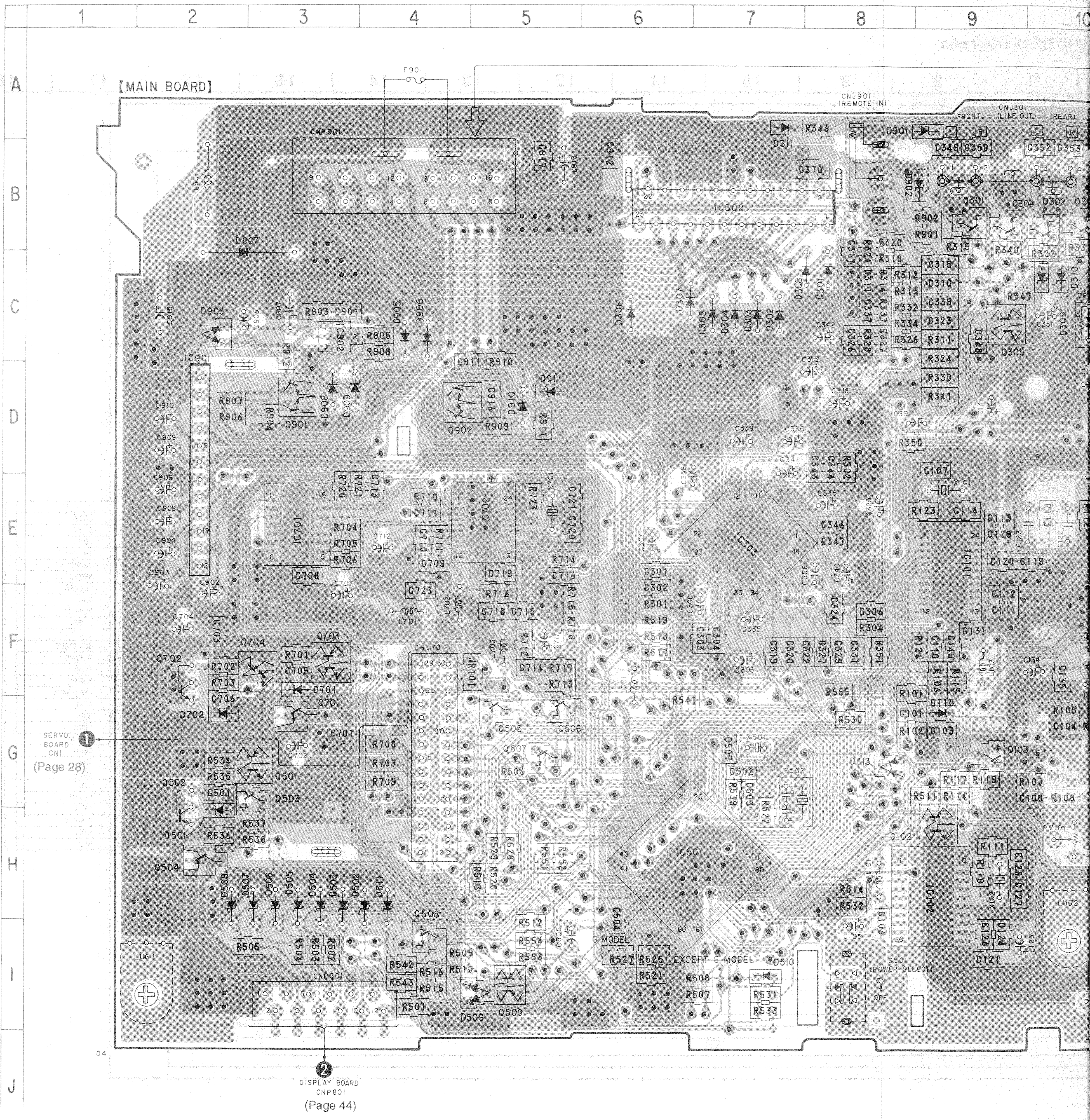
- B+ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATT cords.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : CD PLAY
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD

4-6. PRINTED WIRING BOARDS — MAIN SECTION —

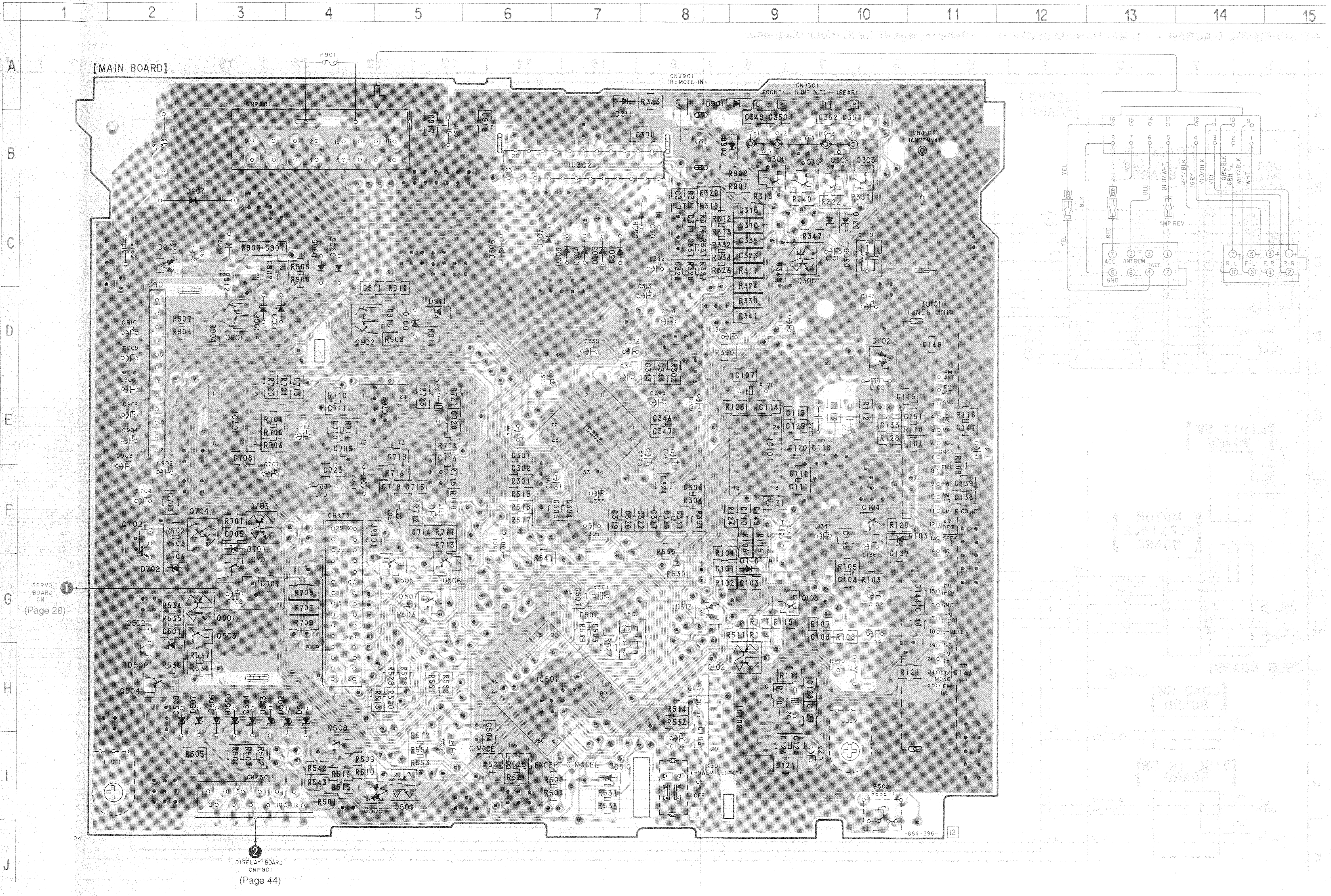
- **Semiconductor Location**

Ref. No.	Location
D102	D-10
D103	F-10
D110	G-9
D301	C-8
D302	C-7
D303	C-7
D304	C-7
D305	C-7
D306	C-6
D307	C-6
D308	C-7
D309	C-10
D310	C-10
D311	A-7
D313	G-8
D501	H-2
D502	H-3
D503	H-3
D504	H-3
D505	H-3
D506	H-3
D507	H-2
D508	H-2
D509	I-4
D510	I-7
D511	H-4
D701	F-3
D702	G-2
D901	A-8
D902	B-8
D903	C-2
D905	C-4
D906	C-4
D907	B-2
D908	D-3
D909	D-3
D910	D-5
D911	D-5
IC101	E-9
IC102	H-9
IC302	B-7
IC303	E-7
IC501	H-6
IC701	E-3
IC702	E-5
IC901	D-2
IC902	C-3
Q102	H-9
Q103	G-9
Q104	F-10
Q301	B-9
Q302	B-10
Q303	B-10
Q304	B-9
Q305	C-9
Q501	G-3
Q502	G-3
Q503	G-3
Q504	H-2
Q505	G-5
Q506	G-5
Q507	G-5
Q508	I-4
Q509	I-5
Q701	G-3
Q702	F-2
Q703	F-3
Q704	F-3
Q901	D-3
Q902	D-4

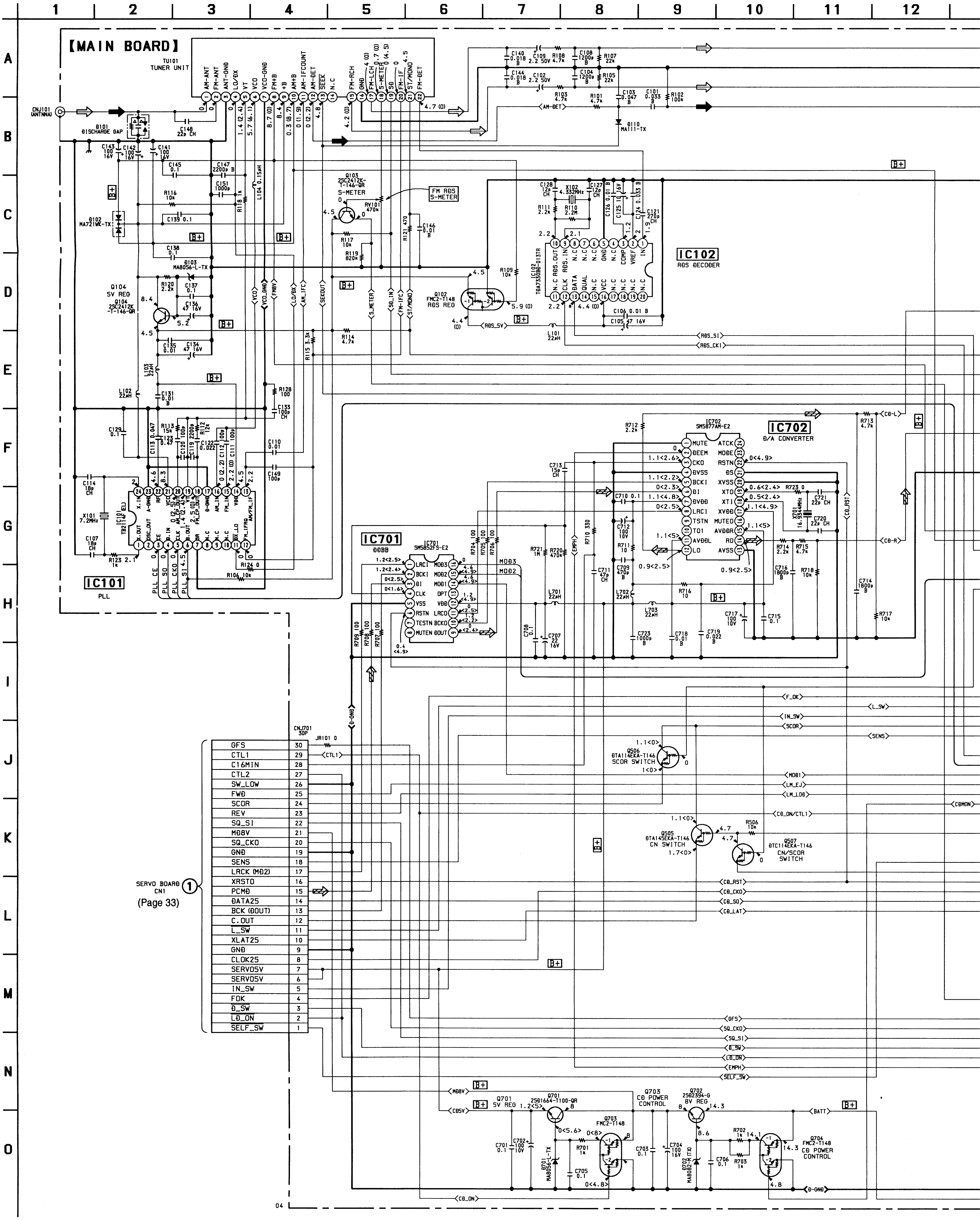
Note:
- o———— : parts extracted from the component side.
- ● : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.
- Abbreviation
  G : German model.


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
J
[MAIN BOARD]
F901
CNP901
CNJ901 (REMOTE IN)
CNJ301 (FRONT) — (LINE OUT) — (REAR)
IC302
IC303
IC701
IC702
IC501
IC101
IC102
IC901
CNJ701
X501
X502
X101
RV101
S501 (POWER SELECT)
ON
OFF
G MODEL
EXCEPT G MODEL
LUG1
LUG2
CNP501
SERVO BOARD CN1
(Page 28)
DISPLAY BOARD CNP801
(Page 44)

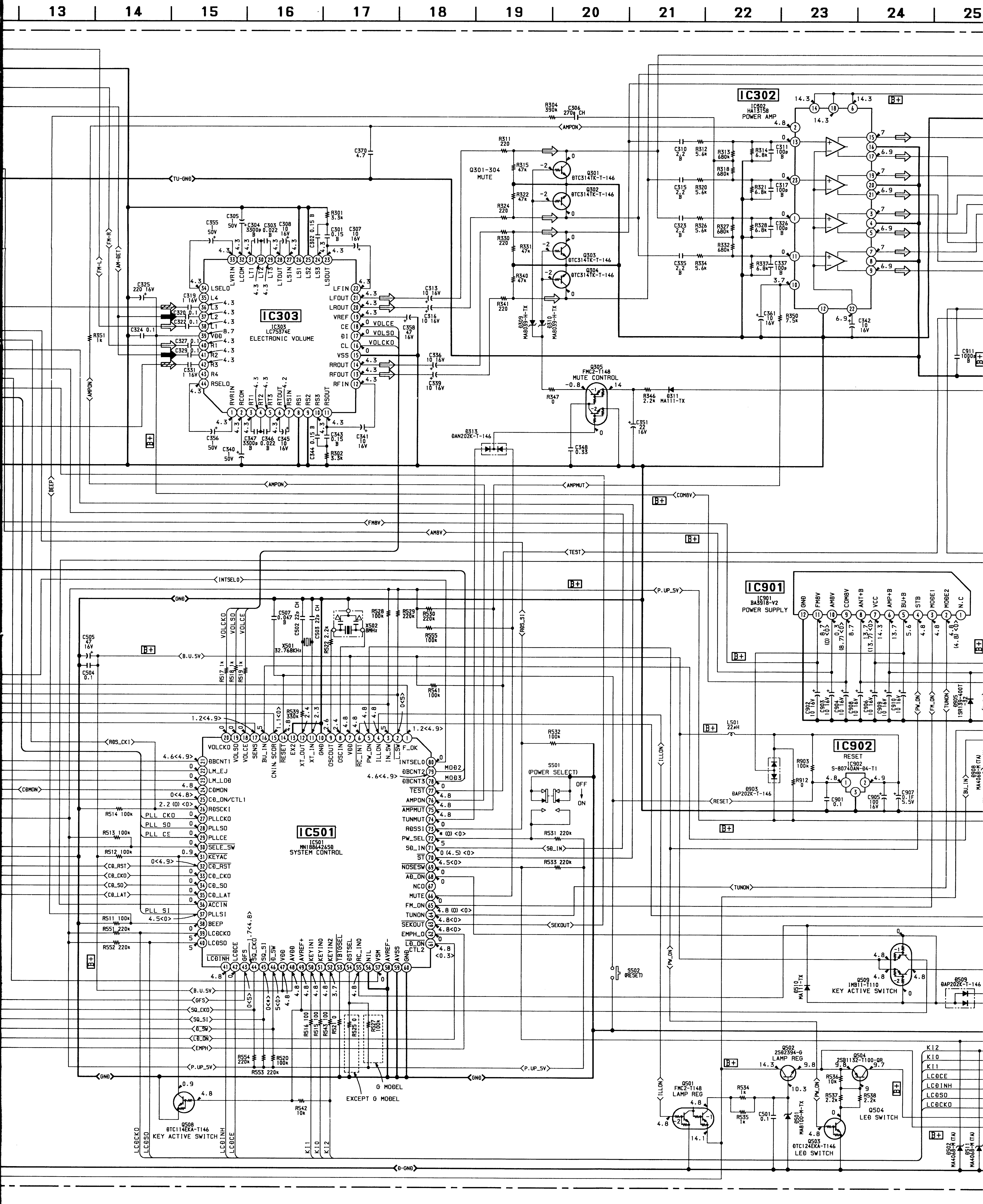
4-6. PRINTED WIRING BOARDS — MAIN SECTION —

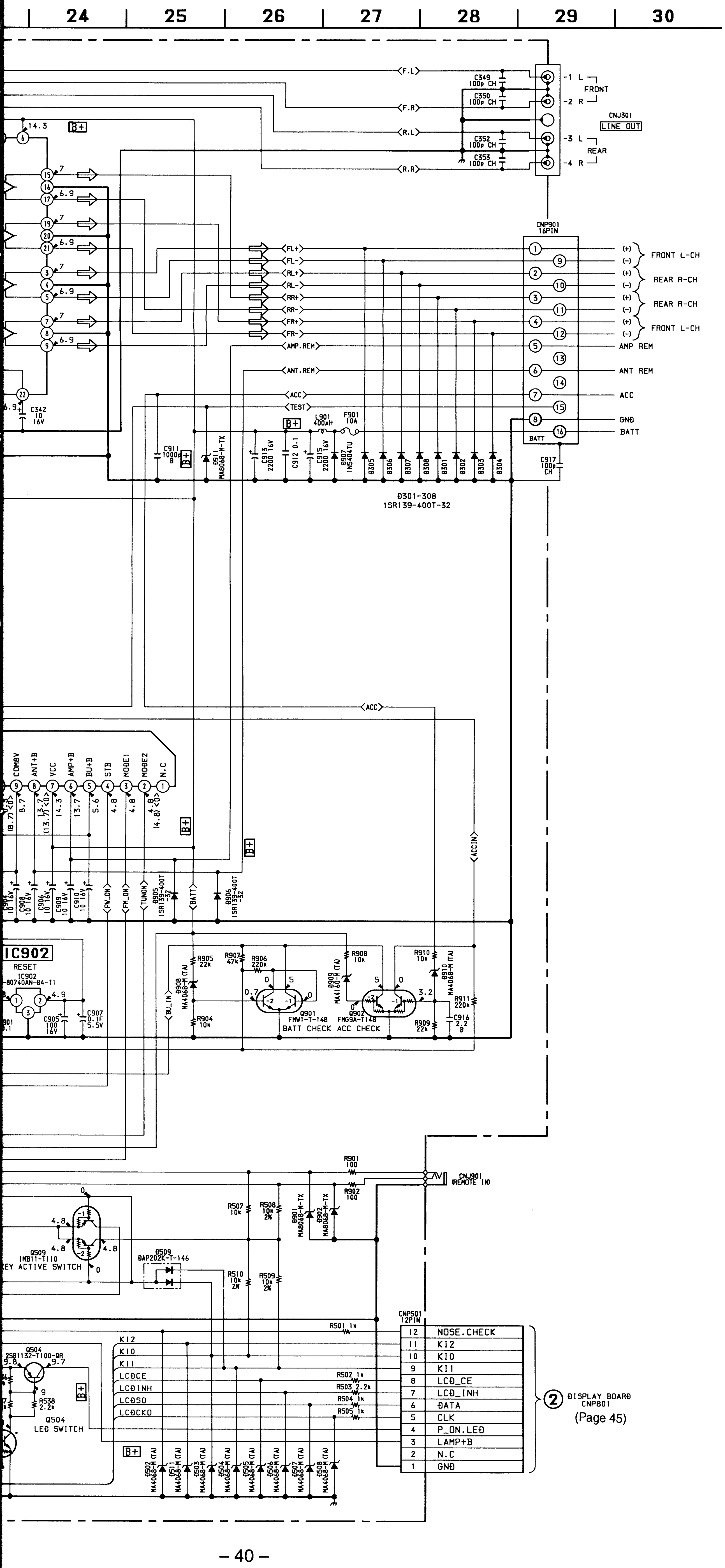

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
[MAIN BOARD]
F901
CNP901
CNJ901 (REMOTE IN)
CNJ301 (FRONT) — (LINE OUT) — (REAR)
L
R
CNJ101 (ANTENNA)
IC302
IC303
IC501
IC101
IC102
IC701
IC702
IC901
CNJ701
CP101
TU101 TUNER UNIT
1 AM ANT
2 FM ANT
3 GND
4 LO/DX
5 VT
6 VCO
GND
7 FM +B
9 +B
10 AM +B
11 AM-IF COUNT
12 AM DET
13 SEEK
14 NC
15 FM R-CH
16 GND
17 FM L-CH
18 S-METER
19 SD
20 IF
21 ST/MONO
22 FM DET
SERVO BOARD CN1
(Page 28)
DISPLAY BOARD CNP801
(Page 44)
CNP501
LUG1
LUG2
S501 (POWER SELECT)
ON
OFF
S502 (RESET)
G MODEL
EXCEPT G MODEL
RY101
X101
X501
X502
1-664-296-12
YEL
BLK
RED
BLU
BLU/WHT
GRY
GRY/BLK
VIO
VIO/BLK
GRN
GRN/BLK
WHT
WHT/BLK
AMP REM
ACC
ANTREM
BATT
GND
R-L
F-L
F-R
R-R

4-7. SCHEMATIC DIAGRAM — MAIN SECTION — • Refer to page 49 for IC Block Diagrams.



1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
【MAIN BOARD】
TU101 TUNER UNIT
AM-ANT
FM-ANT
ANT-GND
LO/DX
VT
VCO
VCO-GND
FM+B
+B
AM+B
AM-IFCOUNT
AM-DET
SEEK
N.C
FM-RCH
GND
FM-LCH
S-METER
SD
FM-IF
ST/MONO
FM-DET
CNJ101 (ANTNNA)
D101 DISCHARGE GAP
C148 22p CH
Q102 MA721WK-TX
Q104 5V REG 2SC2412K-T-146-QR
D103 MA8056-L-TX
L104 0.15μH
L102 22μH
L103 22μH
IC101 PLL
IC101 TB2114F (EL)
X101 7.2MHz
X.OUT
OSC_OUT
CE
B.IN
CLK
B.OUT
SR
N.C
X.IN
A-GND
RF
VCC
AM_CP_OUT
FM_CP_OUT
D-GND
AM_IN
FM_IN
VDD
FM_IFRQ
AM/FM_IF
PLL CE
PLL SO
PLL CKO
PLL SI
Q103 2SC2412K-T-146-QR S-METER
RV101 470k
FM RDS S-METER
Q102 FMC2-T148 RDS REG
IC102 TDA7330BD-013TR
IC102 RDS DECODER
X102 4.332MHz
RDS.OUT
RDS.IN
DATA
QUAL
VCC
GND
COMP
VREF
IN
D110 MA111-TX
IC701 DDBB
IC701 SM5852FS-E2
LRCI
BCKI
DI
CLK
VSS
RSTN
TESTN
MUTEN
MOD3
MOD2
MOD1
OPT
VDD
LRCO
BCKO
DOUT
IC702 D/A CONVERTER
IC702 SM5877AM-E2
MUTE
DEEM
CKO
DVSS
BCKI
DI
DVDD
LRCI
TSTN
TDI
AVDDL
LO
ATCK
MODE
RSTN
DS
XVSS
XTO
XTI
XVDD
MUTEO
AVDDR
RO
AVSS
X701 16.9344MHz
CNJ701 30P
JR101 0
GFS
CTL1
C16MIN
CTL2
SW_LOW
FWD
SCOR
REV
SQ_SI
MDDV
SQ_CKO
GND
SENS
LRCK (MD2)
XRSTO
PCMD
DATA25
BCK (DOUT)
C.OUT
L_SW
XLAT25
GND
CLOK25
SERVO5V
SERVO5V
IN_SW
FOK
D_SW
LD_ON
SELF_SW
SERVO BOARD CN1 ①
(Page 33)
Q506 DTA114EKA-T146 SCOR SWITCH
Q505 DTA145EKA-T146 CN SWITCH
Q507 DTC114EKA-T146 CN/SCOR SWITCH
Q701 5V REG
Q701 2SD1664-T100-QR
D701 MA8056-L-TX
Q703 FMC2-T148
Q703 CD POWER CONTROL
Q702 2SD2394-G 8V REG
D702 MA8082-M (TX)
Q704 FMC2-T148 CD POWER CONTROL
B+


13
14
15
16
17
18
19
20
21
22
23
24
25
IC302
IC302 HA13158 POWER AMP
IC303
IC303 LC75374E ELECTRONIC VOLUME
IC501
IC501 MN188642650 SYSTEM CONTROL
IC901
IC901 BA3918-V2 POWER SUPPLY
IC902
RESET IC902 S-80740AN-D4-T1
Q301-304 MUTE
Q301 DTC314TK-T-146
Q302 DTC314TK-T-146
Q303 DTC314TK-T-146
Q304 DTC314TK-T-146
Q305 FMC2-T148 MUTE CONTROL
D309 MA8039-H-TX
D310 MA8039-H-TX
D311 MA111-TX
D313 DAN202K-T-146
Q501 FMC2-T148 LAMP REG
Q502 2SB2394-G LAMP REG
Q503 DTC124EKA-T146 LED SWITCH
Q504 2SB1132-T100-QR LED SWITCH
Q508 DTC114EKA-T146 KEY ACTIVE SWITCH
Q509 IMB11-T110 KEY ACTIVE SWITCH
D501 MA8100-M-TX
D510 MA111-TX
D903 DAP202K-T-146
D509 DAP202K-T-146
D905 1SR139-400T
X501 32.768KHz
X502 8MHz
S501 (POWER SELECT) OFF ON
S502 (RESET)
G MODEL
EXCEPT G MODEL
L501 22μH
VOLCKO
VOLSO
VOLCE
AMPON
AMPMUT
TU-GND
FM-L
FM-R
AM-DET
BEEP
COMBV
FMBV
AMBV
TEST
INTSELO
GND
P.UP_5V
B.U.5V
RDS_SI
RDS_CKI
CDMON
ILLON
PW_ON
FM_ON
TUNON
SEKOUT
SD_IN
RESET
BU_IN
GFS
SQ_CKO
SQ_SI
D_SW
LD_ON
EMPH
D-GND
CD_RST
CD_CKO
CD_SO
CD_LAT
PLL CKO
PLL SO
PLL CE
PLL SI
K12
K10
K11
LCDCE
LCDINH
LCDSO
LCDCKO
B+


24
25
26
27
28
29
30
CNJ301
LINE OUT
FRONT
REAR
-1 L
-2 R
-3 L
-4 R
C349 100p CH
C350 100p CH
C352 100p CH
C353 100p CH
CNP901 16PIN
FRONT L-CH
REAR R-CH
REAR R-CH
FRONT L-CH
AMP REM
ANT REM
ACC
GND
BATT
L901 400μH
F901 10A
D301-308
1SR139-400T-32
D907 1N5404TU
D911 MA8068-M-TX
C913 2200 16V
C915 2200 16V
C912 0.1
C911 1000p
C917 100p CH
COMBV
ANT+B
VCC
AMP+B
BU+B
STB
MODE1
MODE2
N.C
IC902
RESET
D905 1SR139-400T-32
D906 1SR139-400T-32
Q901 FMW1-T-148 BATT CHECK
Q902 FMG9A-T148 ACC CHECK
D908 MA4068-M (TA)
D909 MA4160-M (TA)
D910 MA4068-M (TA)
CNJ901 REMOTE IN
D901 MA8068-M-TX
D902 MA8068-M-TX
Q509 IMB11-T110 KEY ACTIVE SWITCH
D509 DAP202K-T-146
Q504 2SB1132-T100-QR LED SWITCH
CNP501 12PIN
12 NOSE.CHECK
11 KI2
10 KI0
9 KI1
8 LCD_CE
7 LCD_INH
6 DATA
5 CLK
4 P_ON.LED
3 LAMP+B
2 N.C
1 GND
② DISPLAY BOARD CNP801
(Page 45)

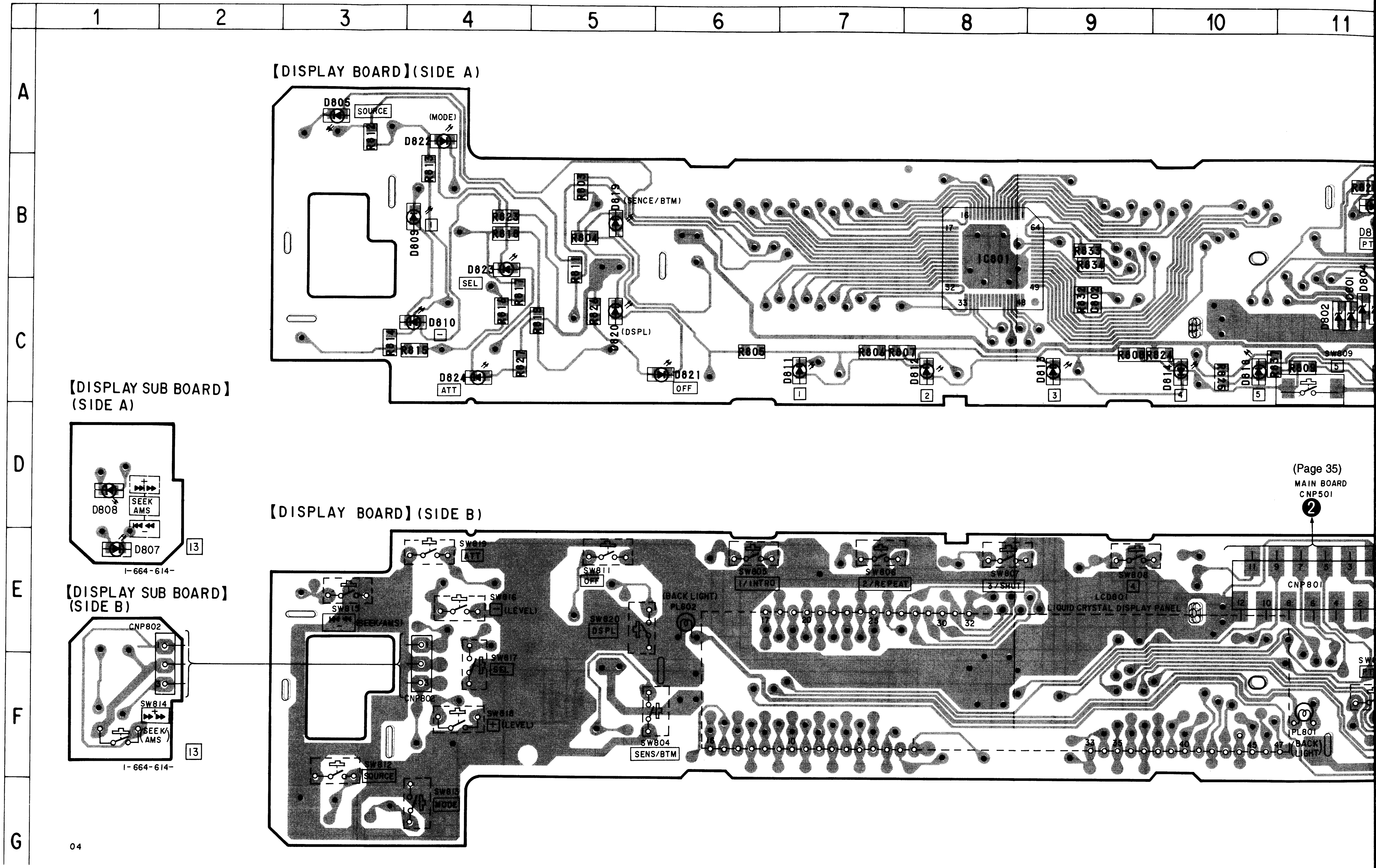
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.
- B+ : B+ Line.
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATT cords.
- Voltage is dc with respect to ground under no-signal (detuned) condition.
  no mark : FM
  ( ) : MW
  < > : CD PLAY
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ➡ : MW
  ⇨ : CD
- Abbreviation
  G : German model.

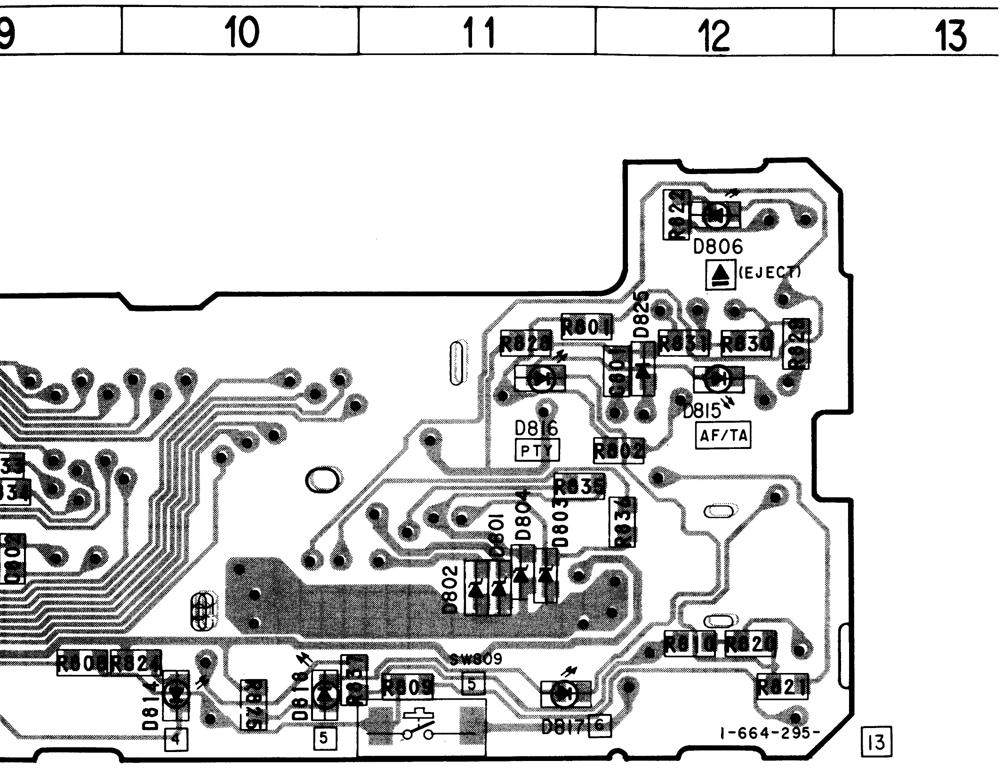
4-8. PRINTED WIRING BOARDS — DISPLAY SECTION —

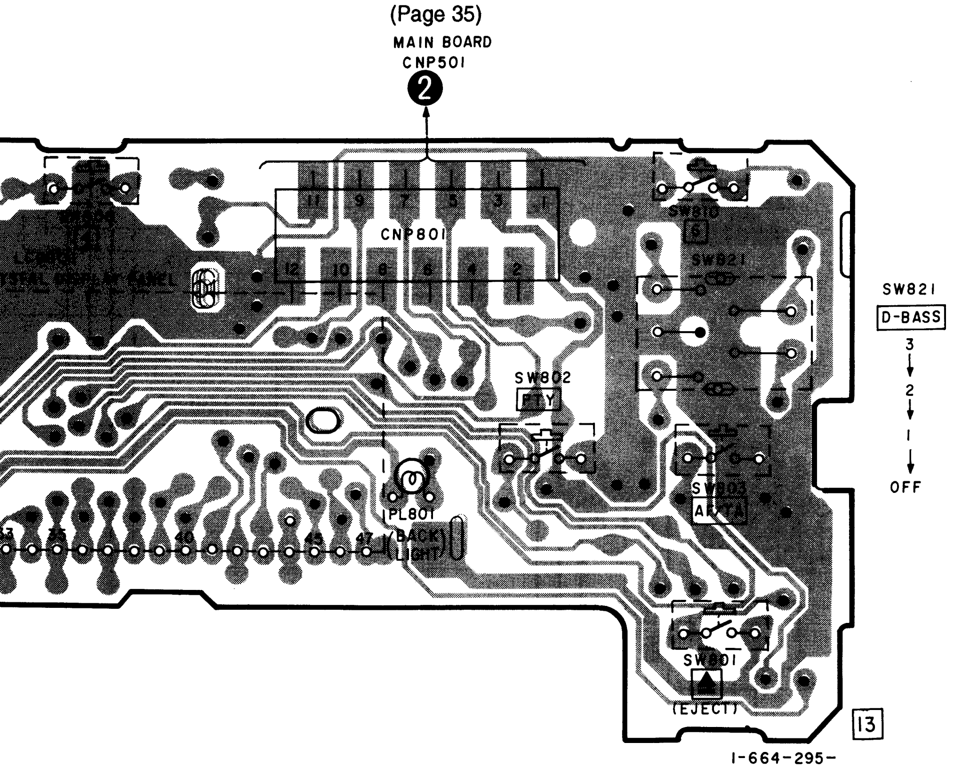
• Semiconductor Location

Ref. No.	Location
D801	C-11
D802	C-11
D803	C-11
D804	C-11
D805	A-3
D806	A-12
D807	E-1
D808	D-1
D809	B-4
D810	C-4
D811	C-7
D812	C-8
D813	C-9
D814	C-10
D815	B-12
D816	B-11
D817	C-11
D818	C-10
D819	B-5
D820	C-5
D821	C-6
D822	A-4
D823	B-4
D824	C-4
D825	B-12
IC801	B-8

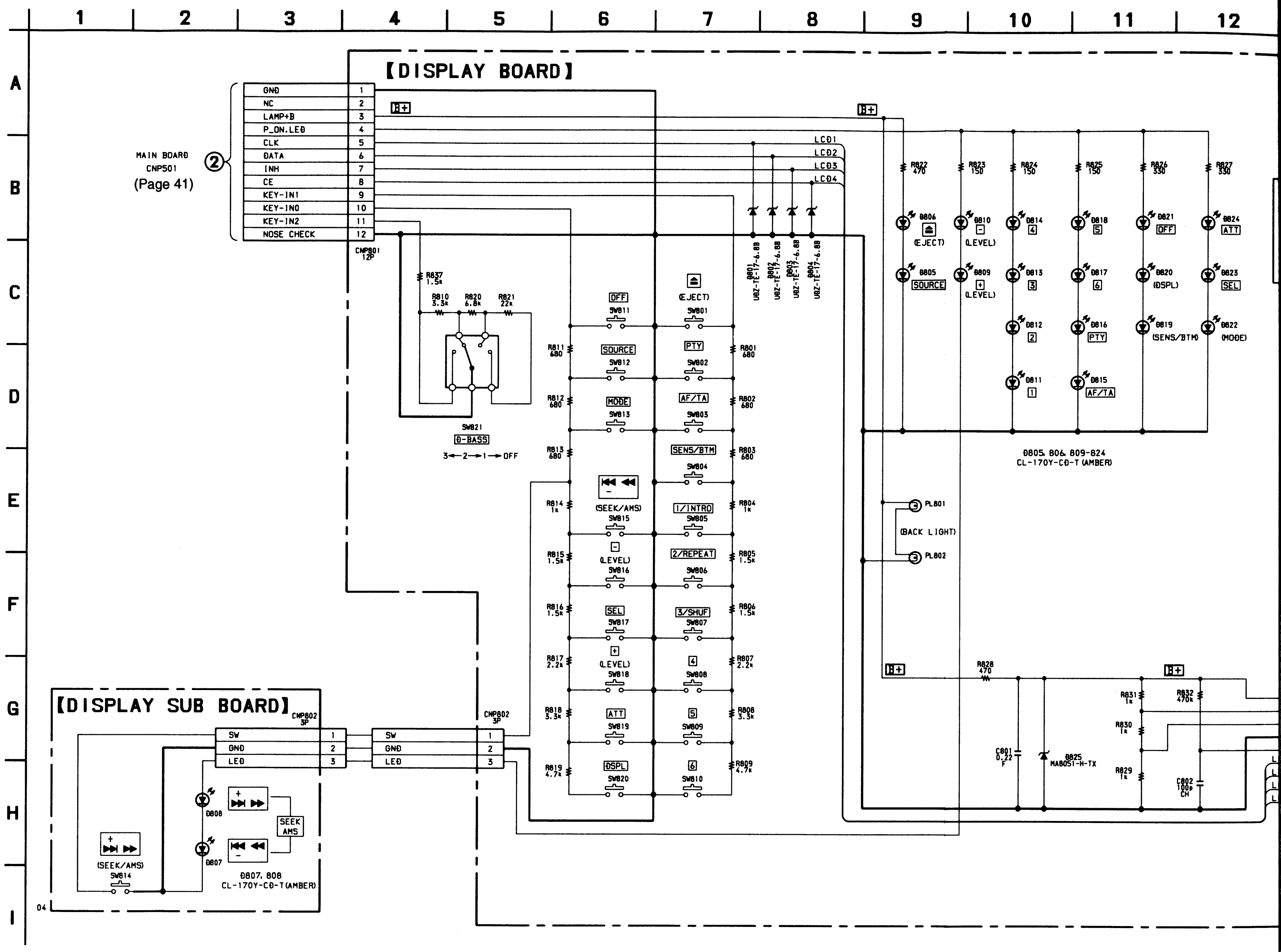

1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
【DISPLAY BOARD】(SIDE A)
D805
SOURCE
(MODE)
D822
D809
D823
SEL
D810
D824
ATT
D819
(SENCE/BTM)
D820
(DSPL)
D821
OFF
IC801
R805
R806
R807
R808
R824
D811
D812
D813
D814
D818
D802
D801
SW809
【DISPLAY SUB BOARD】(SIDE A)
D808
SEEK AMS
D807
13
1-664-614-
【DISPLAY SUB BOARD】(SIDE B)
CNP802
SW814
SEEK/AMS
【DISPLAY BOARD】(SIDE B)
SW819
ATT
SW811
OFF
SW805
1/INTRO
SW806
2/REPEAT
SW807
3/SHUF
SW808
SW815
(SEEK/AMS)
SW816
(LEVEL)
SW820
DSPL
(BACK LIGHT) PL802
LCD801
LIQUID CRYSTAL DISPLAY PANEL
CNP801
SW817
SEL
CNP803
SW818
(LEVEL)
SW804
SENS/BTM
SW812
SOURCE
SW813
MODE
PL801
(BACK LIGHT)
(Page 35)
MAIN BOARD
CNP501
❷
04

Note:
- ○—— : parts extracted from the component side.
- ● : Through hole.
- ▒ : Pattern from the side which enables seeing. (The other layer's patterns are not indicated.)


9
10
11
12
13
D806
(EJECT)
R801
D825
D816
PTY
D815
AF/TA
R802
R835
D801
D804
D803
D802
R810
R820
R821
SW809
D814
D819
D817
1-664-295-
13


(Page 35)
MAIN BOARD
CNP501
❷
CNP801
SW810
SW821
SW802
PTY
SW803
AF/TA
PL801
(BACK LIGHT)
SW801
(EJECT)
SW821
D-BASS
3
2
1
OFF
13
1-664-295-

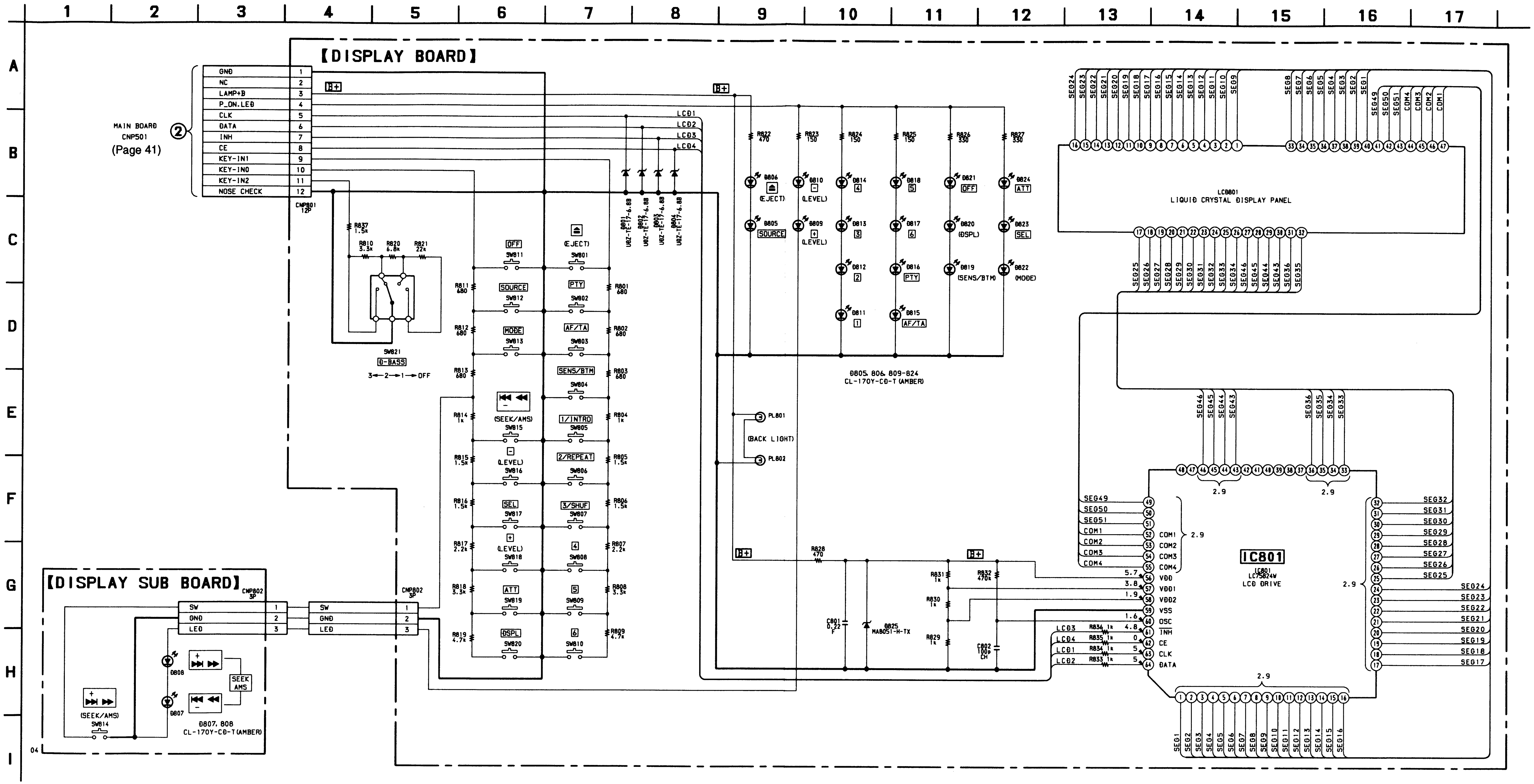
4-9. SCHEMATIC DIAGRAM — DISPLAY SECTION —


【DISPLAY BOARD】
【DISPLAY SUB BOARD】
MAIN BOARD
CNP501
②
(Page 41)
GND 1
NC 2
LAMP+B 3
P_ON.LED 4
CLK 5
DATA 6
INH 7
CE 8
KEY-IN1 9
KEY-IN0 10
KEY-IN2 11
NOSE CHECK 12
CNP801 12P
B+
LCD1
LCD2
LCD3
LCD4
SW821
D-BASS
3→2→1→OFF
OFF SW811
(EJECT) SW801
SOURCE SW812
PTY SW802
MODE SW813
AF/TA SW803
SENS/BTM SW804
(SEEK/AMS) SW815
1/INTRO SW805
(LEVEL) SW816
2/REPEAT SW806
SEL SW817
3/SHUF SW807
(LEVEL) SW818
4 SW808
ATT SW819
5 SW809
DSPL SW820
6 SW810
D805 806, 809-824
CL-170Y-CD-T (AMBER)
PL801
(BACK LIGHT)
PL802
D825
MA8051-H-TX
SW
GND
LED
CNP802 3P
(SEEK/AMS) SW814
SEEK AMS
D807, 808
CL-170Y-CD-T (AMBER)

Note:

- All capacitors are in µF unless otherwise not 50 WV or less are not indicated except for and tantalums.
- All resistors are in Ω and ¼W or less unles specified.
- B+ : B+ Line.
- Power voltage is dc 14.4V and fed with regulat supply from ACC and BATT cords.

4-9. SCHEMATIC DIAGRAM — DISPLAY SECTION —



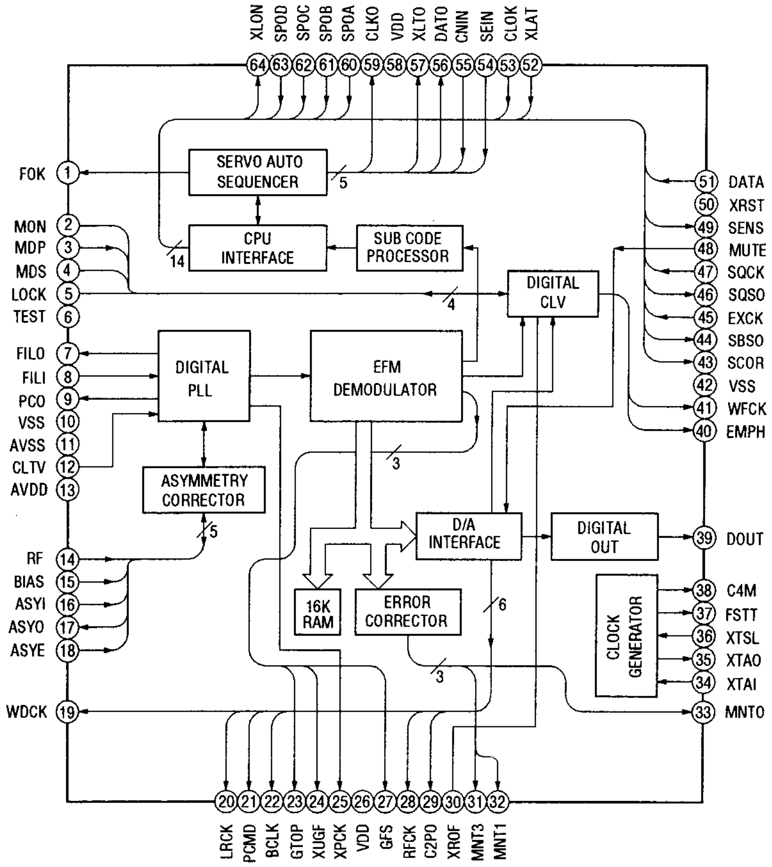
【DISPLAY BOARD】
【DISPLAY SUB BOARD】
MAIN BOARD
CNP501
(Page 41)
GND
NC
LAMP+B
P_ON.LED
CLK
DATA
INH
CE
KEY-IN1
KEY-IN0
KEY-IN2
NOSE CHECK
CNP801
12P
CNP802
3P
SW
GND
LED
B+
LCD1
LCD2
LCD3
LCD4
SW821
D-BASS
3←2→1→OFF
OFF
SOURCE
MODE
SEEK/AMS
LEVEL
SEL
ATT
DSPL
EJECT
PTY
AF/TA
SENS/BTM
1/INTRO
2/REPEAT
3/SHUF
SW801
SW802
SW803
SW804
SW805
SW806
SW807
SW808
SW809
SW810
SW811
SW812
SW813
SW815
SW816
SW817
SW818
SW819
SW820
SW814
SEEK AMS
D807, 808
CL-170Y-CD-T (AMBER)
D805, 806, 809-824
CL-170Y-CD-T (AMBER)
PL801
PL802
(BACK LIGHT)
LCD801
LIQUID CRYSTAL DISPLAY PANEL
IC801
IC801
LC75824W
LCD DRIVE
VDD
VDD1
VDD2
VSS
OSC
INH
CE
CLK
DATA
COM1
COM2
COM3
COM4
D825
MA8051-H-TX
C801
0.22
F
C802
100p
CH

Note:

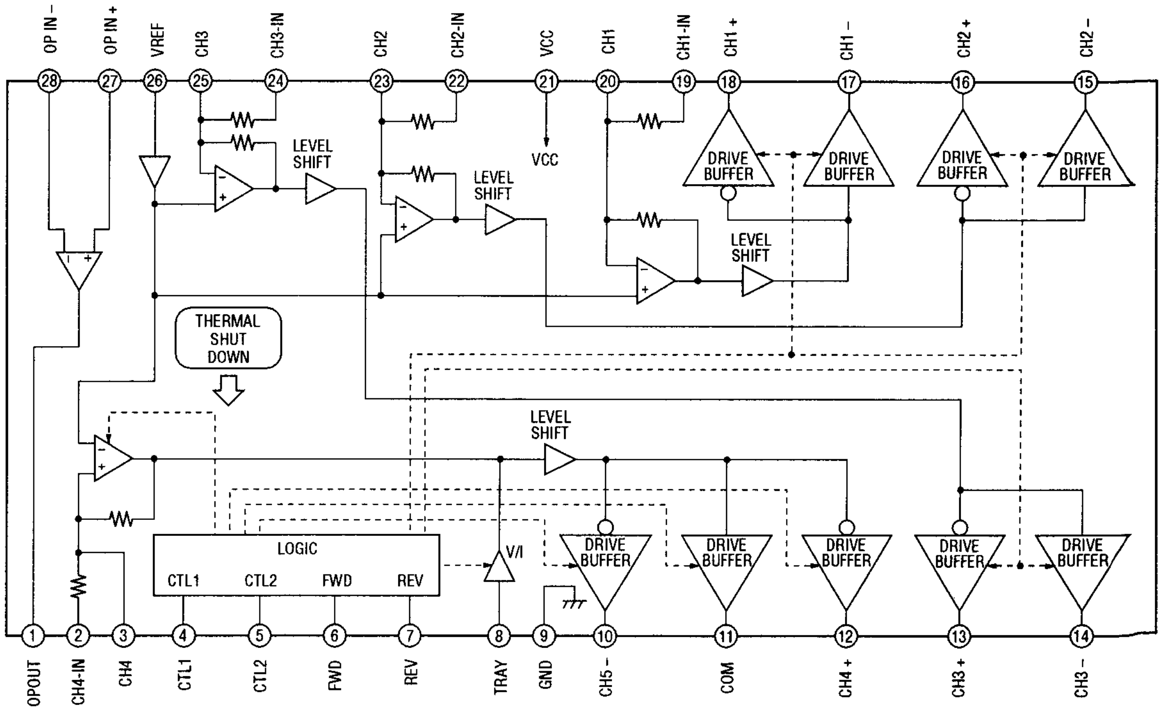
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¹/₄ W or less unless otherwise specified.
- B+ : B+ Line.
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATT cords.
- Voltage is dc with respect to ground under no-signal (detuned) condition.
  no mark : FM
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.

• IC Block Diagrams

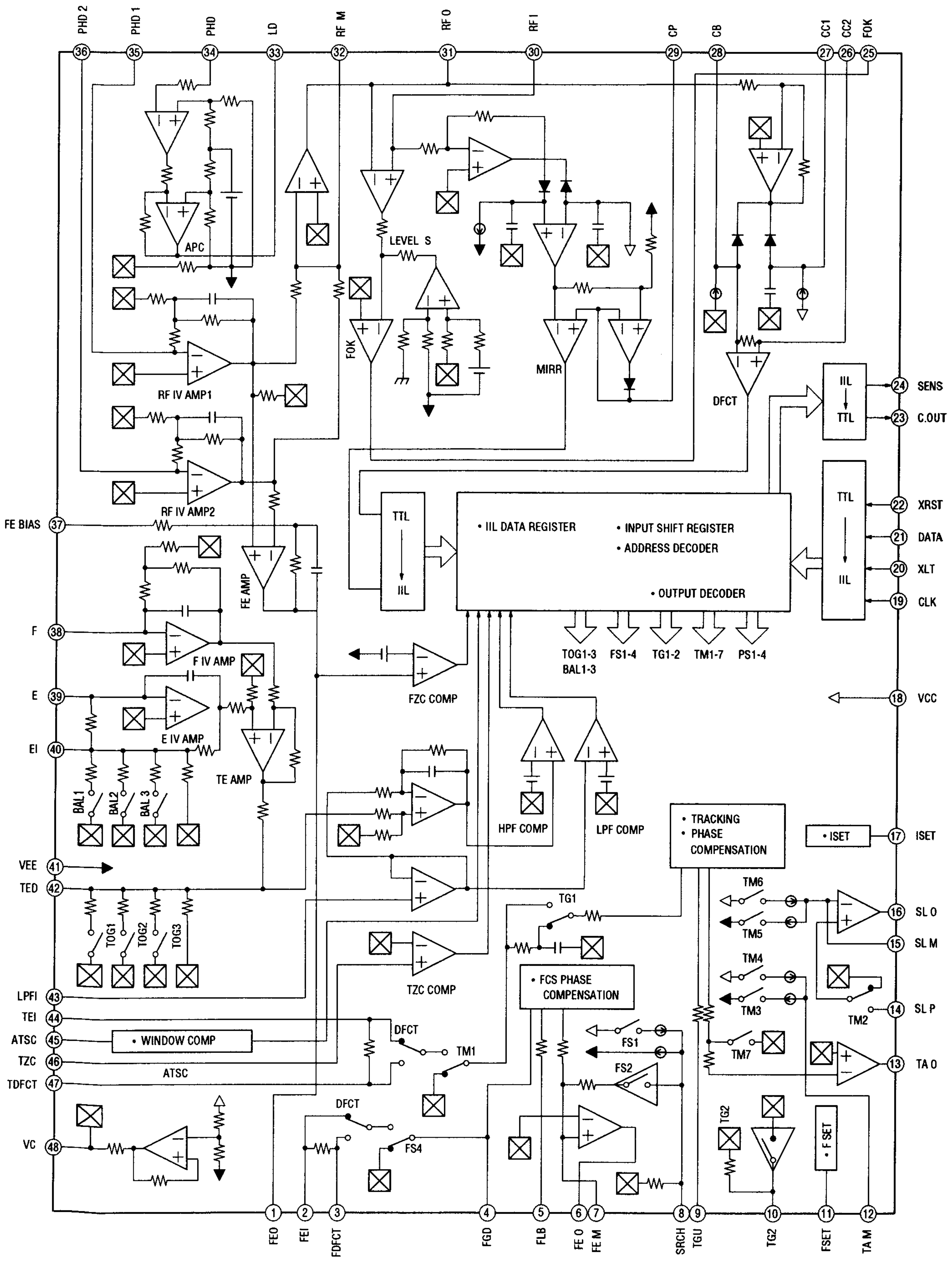
IC1 CXD2507AQ


XLON 64
SPOD 63
SPOC 62
SPOB 61
SPOA 60
CLKO 59
VDD 58
XLTO 57
DATO 56
CNIN 55
SEIN 54
CLOK 53
XLAT 52
FOK 1
MON 2
MDP 3
MDS 4
LOCK 5
TEST 6
FILO 7
FILI 8
PCO 9
VSS 10
AVSS 11
CLTV 12
AVDD 13
RF 14
BIAS 15
ASYI 16
ASYO 17
ASYE 18
WDCK 19
LRCK 20
PCMD 21
BCLK 22
GTOP 23
XUGF 24
XPCK 25
VDD 26
GFS 27
RFCK 28
C2PO 29
XROF 30
MNT3 31
MNT1 32
MNTO 33
XTAI 34
XTAO 35
XTSL 36
FSTT 37
C4M 38
DOUT 39
EMPH 40
WFCK 41
VSS 42
SCOR 43
SBSO 44
EXCK 45
SQSO 46
SQCK 47
MUTE 48
SENS 49
XRST 50
DATA 51
SERVO AUTO SEQUENCER
5
CPU INTERFACE
14
SUB CODE PROCESSOR
DIGITAL CLV
4
DIGITAL PLL
EFM DEMODULATOR
3
ASYMMETRY CORRECTOR
5
D/A INTERFACE
DIGITAL OUT
16K RAM
ERROR CORRECTOR
6
3
CLOCK GENERATOR

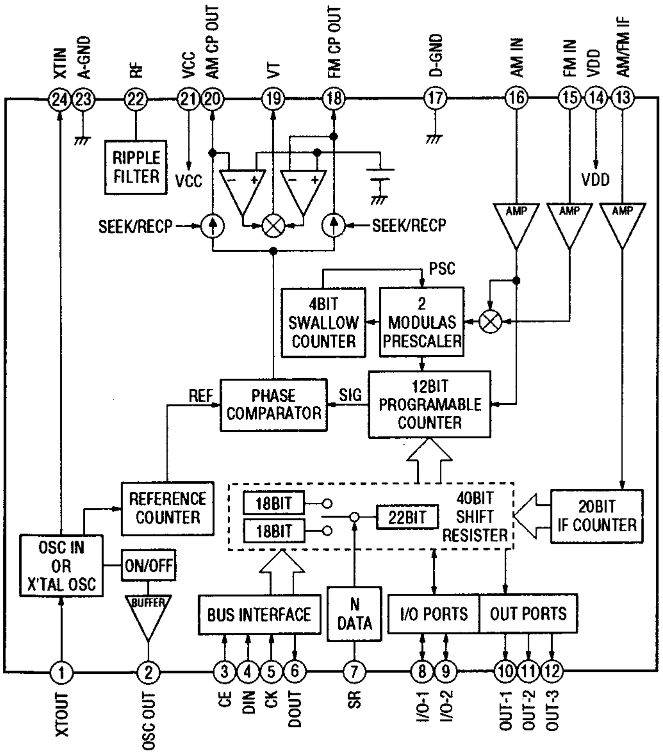
IC3 BA6796FP-T1


OP IN – 28
OP IN + 27
VREF 26
CH3 25
CH3-IN 24
CH2 23
CH2-IN 22
VCC 21
CH1 20
CH1-IN 19
CH1 + 18
CH1 – 17
CH2 + 16
CH2 – 15
OPOUT 1
CH4-IN 2
CH4 3
CTL1 4
CTL2 5
FWD 6
REV 7
TRAY 8
GND 9
CH5 – 10
COM 11
CH4 + 12
CH3 + 13
CH3 – 14
LEVEL SHIFT
LEVEL SHIFT
LEVEL SHIFT
LEVEL SHIFT
VCC
DRIVE BUFFER
DRIVE BUFFER
DRIVE BUFFER
DRIVE BUFFER
THERMAL SHUT DOWN
LOGIC
CTL1
CTL2
FWD
REV
V/I
DRIVE BUFFER
DRIVE BUFFER
DRIVE BUFFER
DRIVE BUFFER
DRIVE BUFFER

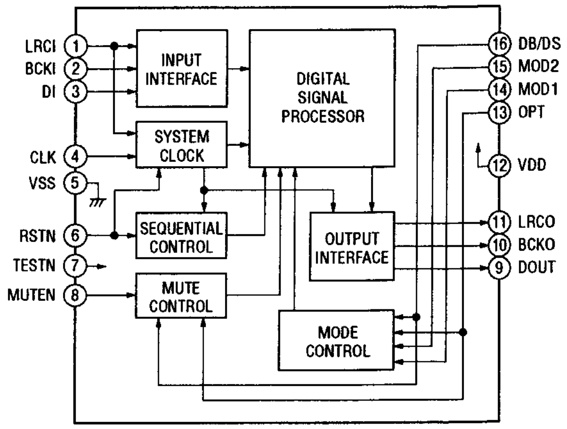
IC2 CXA1782BQ


PHD 2
PHD 1
PHD
LD
RF M
RF O
RF I
CP
CB
CC1
CC2
FOK
APC
LEVEL S
FOK
MIRR
DFCT
RF IV AMP1
RF IV AMP2
FE AMP
IIL
TTL
SENS
C.OUT
TTL
IIL
XRST
DATA
XLT
CLK
• IIL DATA REGISTER
• INPUT SHIFT REGISTER
• ADDRESS DECODER
• OUTPUT DECODER
TOG1-3
BAL1-3
FS1-4
TG1-2
TM1-7
PS1-4
FE BIAS
F
F IV AMP
E
E IV AMP
EI
TE AMP
BAL1
BAL2
BAL 3
FZC COMP
HPF COMP
LPF COMP
VCC
• TRACKING
• PHASE
COMPENSATION
• ISET
ISET
VEE
TED
TOG1
TOG2
TOG3
TG1
TM6
TM5
SL O
SL M
TM4
TM3
TM2
SL P
TM7
TA O
TZC COMP
• FCS PHASE
COMPENSATION
LPFI
TEI
ATSC
TZC
TDFCT
• WINDOW COMP
DFCT
TM1
ATSC
FS1
FS2
VC
DFCT
FS4
TG2
• F SET
FEO
FEI
FDFCT
FGD
FLB
FE O
FE M
SRCH
TGU
TG2
FSET
TA M

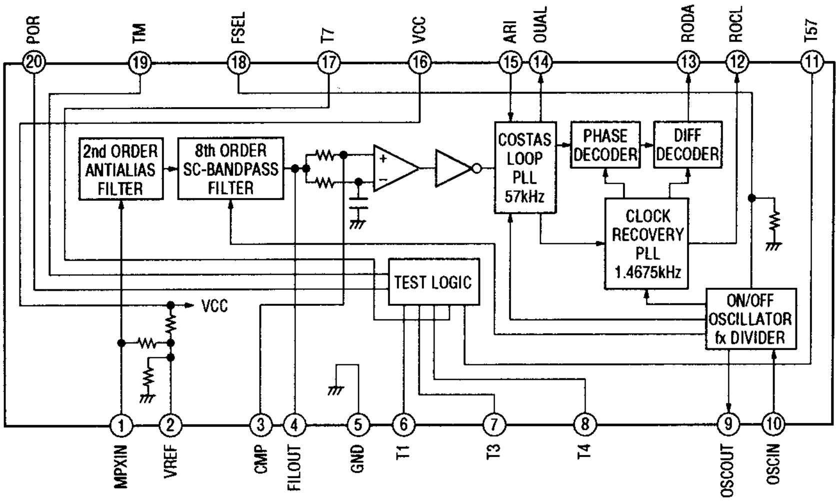
IC101 TB2114F


XTIN
A-GND
RF
VCC
AM CP OUT
VT
FM CP OUT
D-GND
AM IN
FM IN
VDD
AM/FM IF
RIPPLE FILTER
VCC
SEEK/RECP
SEEK/RECP
VDD
AMP
AMP
AMP
PSC
4BIT SWALLOW COUNTER
2 MODULAS PRESCALER
REF
PHASE COMPARATOR
SIG
12BIT PROGRAMABLE COUNTER
REFERENCE COUNTER
18BIT
18BIT
22BIT
40BIT SHIFT RESISTER
20BIT IF COUNTER
OSC IN OR X'TAL OSC
ON/OFF
BUFFER
BUS INTERFACE
N DATA
I/O PORTS
OUT PORTS
XTOUT
OSC OUT
CE
DIN
CK
DOUT
SR
I/O-1
I/O-2
OUT-1
OUT-2
OUT-3

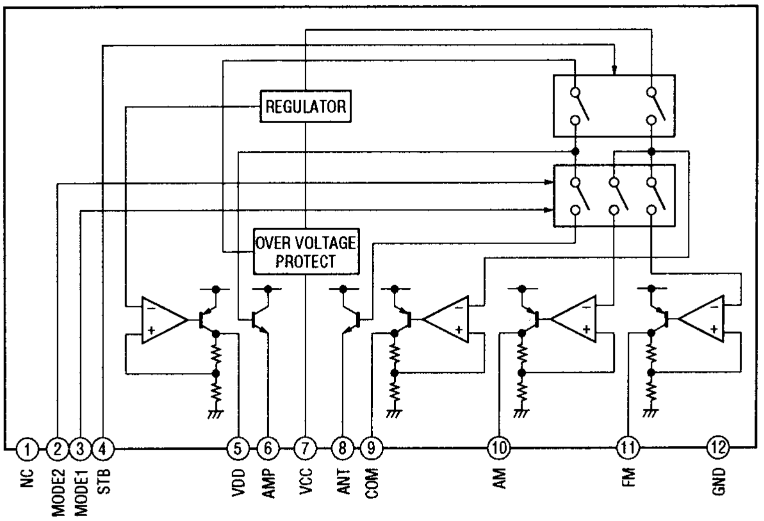
IC701 SM5852ES-E2


LRCI
BCKI
DI
CLK
VSS
RSTN
TESTN
MUTEN
INPUT INTERFACE
SYSTEM CLOCK
DIGITAL SIGNAL PROCESSOR
SEQUENTIAL CONTROL
MUTE CONTROL
OUTPUT INTERFACE
MODE CONTROL
DB/DS
MOD2
MOD1
OPT
VDD
LRCO
BCKO
DOUT

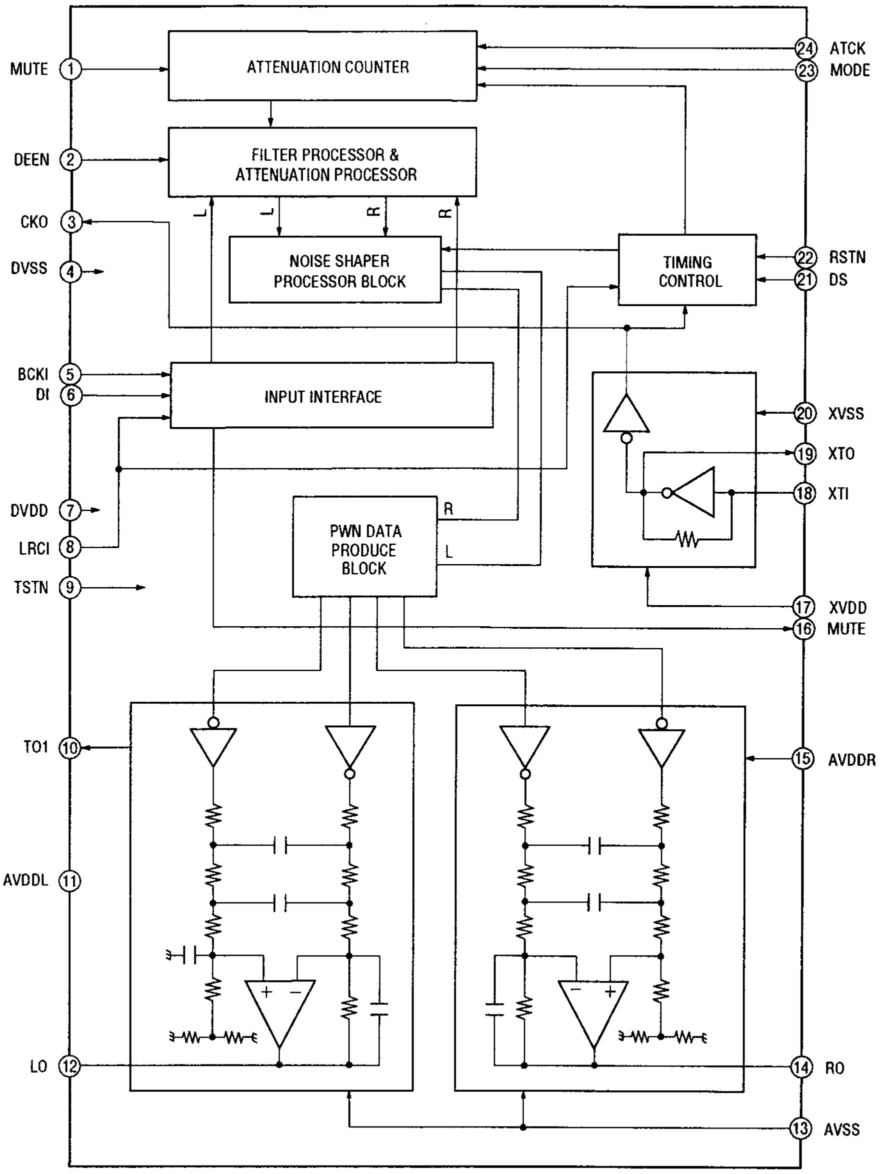
IC102 TDA7330BD


POR
TM
FSEL
T7
VCC
ARI
QUAL
RODA
ROCL
T57
2nd ORDER ANTIALIAS FILTER
8th ORDER SC-BANDPASS FILTER
COSTAS LOOP PLL 57kHz
PHASE DECODER
DIFF DECODER
CLOCK RECOVERY PLL 1.4675kHz
TEST LOGIC
VCC
ON/OFF OSCILLATOR fx DIVIDER
MPXIN
VREF
CMP
FILOUT
GND
T1
T3
T4
OSCOUT
OSCIN

IC901 BA3918-V2

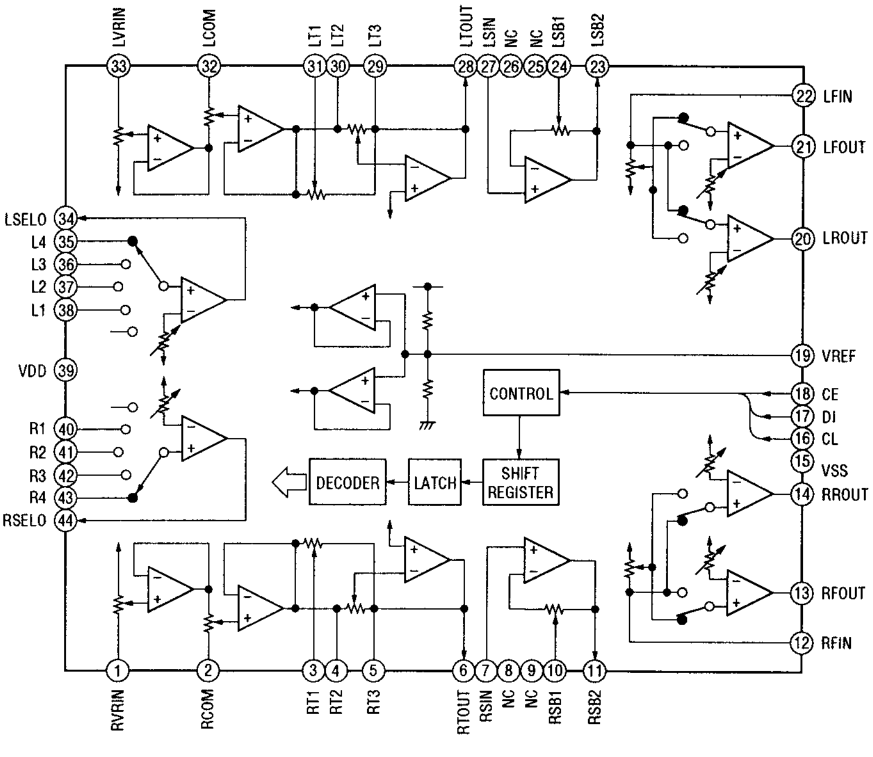

REGULATOR
OVER VOLTAGE PROTECT
NC
MODE2
MODE1
STB
VDD
AMP
VCC
ANT
COM
AM
FM
GND

IC702 SM5877AM-E2



ATTENUATION COUNTER
FILTER PROCESSOR & ATTENUATION PROCESSOR
NOISE SHAPER PROCESSOR BLOCK
TIMING CONTROL
INPUT INTERFACE
PWN DATA PRODUCE BLOCK
L
R
MUTE ①
DEEN ②
CKO ③
DVSS ④
BCKI ⑤
DI ⑥
DVDD ⑦
LRCI ⑧
TSTN ⑨
TO1 ⑩
AVDDL ⑪
LO ⑫
⑬ AVSS
⑭ RO
⑮ AVDDR
⑯ MUTE
⑰ XVDD
⑱ XTI
⑲ XTO
⑳ XVSS
㉑ DS
㉒ RSTN
㉓ MODE
㉔ ATCK

IC303 LC75374E



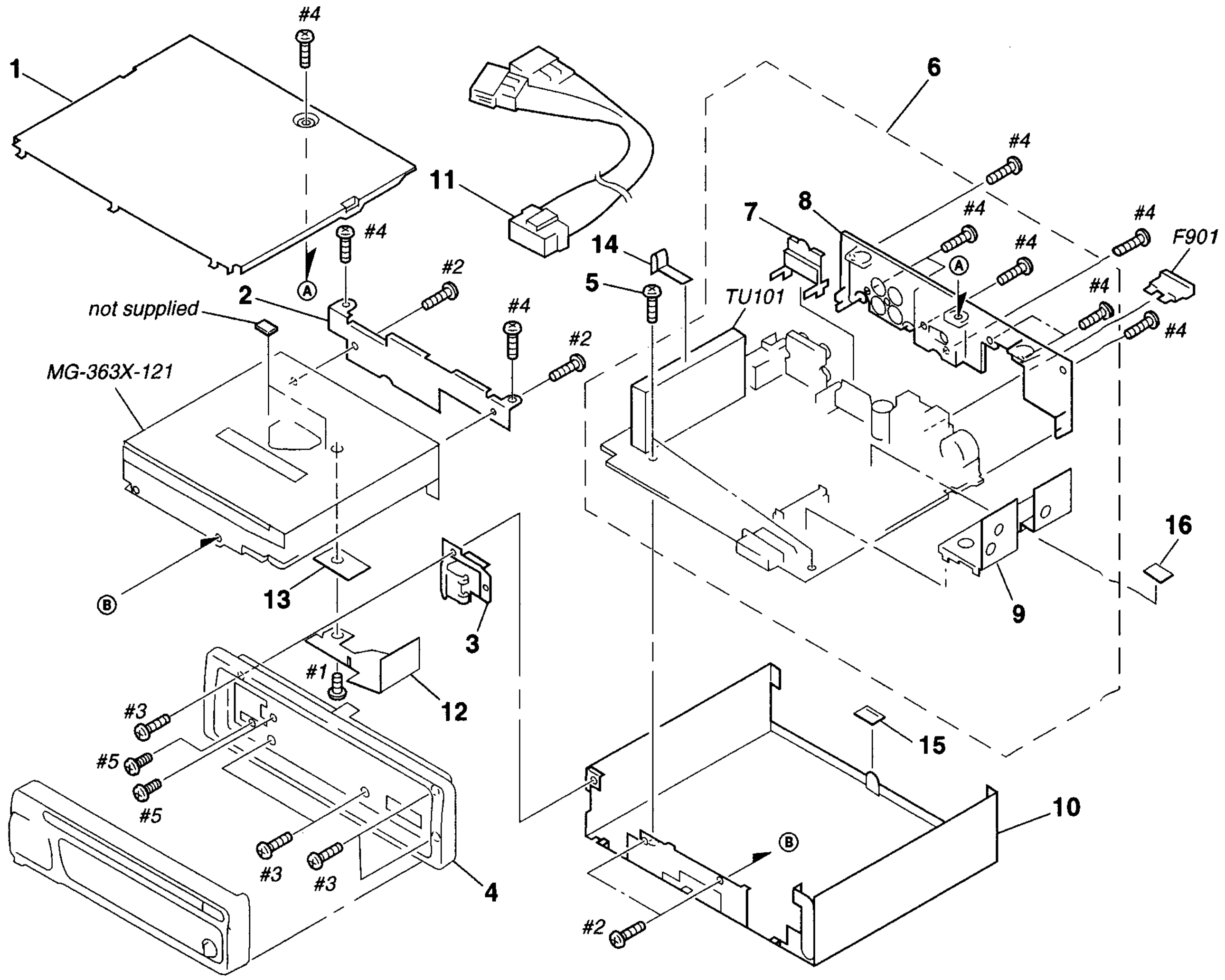
LVRIN ㉝
LCOM ㉜
LT1 ㉛
LT2 ㉚
LT3 ㉙
LTOUT ㉘
LSIN ㉗
NC ㉖
NC ㉕
LSB1 ㉔
LSB2 ㉓
㉒ LFIN
㉑ LFOUT
⑳ LROUT
⑲ VREF
⑱ CE
⑰ DI
⑯ CL
⑮ VSS
⑭ RROUT
⑬ RFOUT
⑫ RFIN
LSELO ㉞
L4 ㉟
L3 (36)
L2 (37)
L1 (38)
VDD (39)
R1 (40)
R2 (41)
R3 (42)
R4 (43)
RSELO (44)
CONTROL
SHIFT REGISTER
LATCH
DECODER
① RVRIN
② RCOM
③ RT1
④ RT2
⑤ RT3
⑥ RTOUT
⑦ RSIN
⑧ NC
⑨ NC
⑩ RSB1
⑪ RSB2

SECTION 5
EXPLODED VIEWS

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
  G : German model
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ Parts Color ↑ Cabinet's Color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

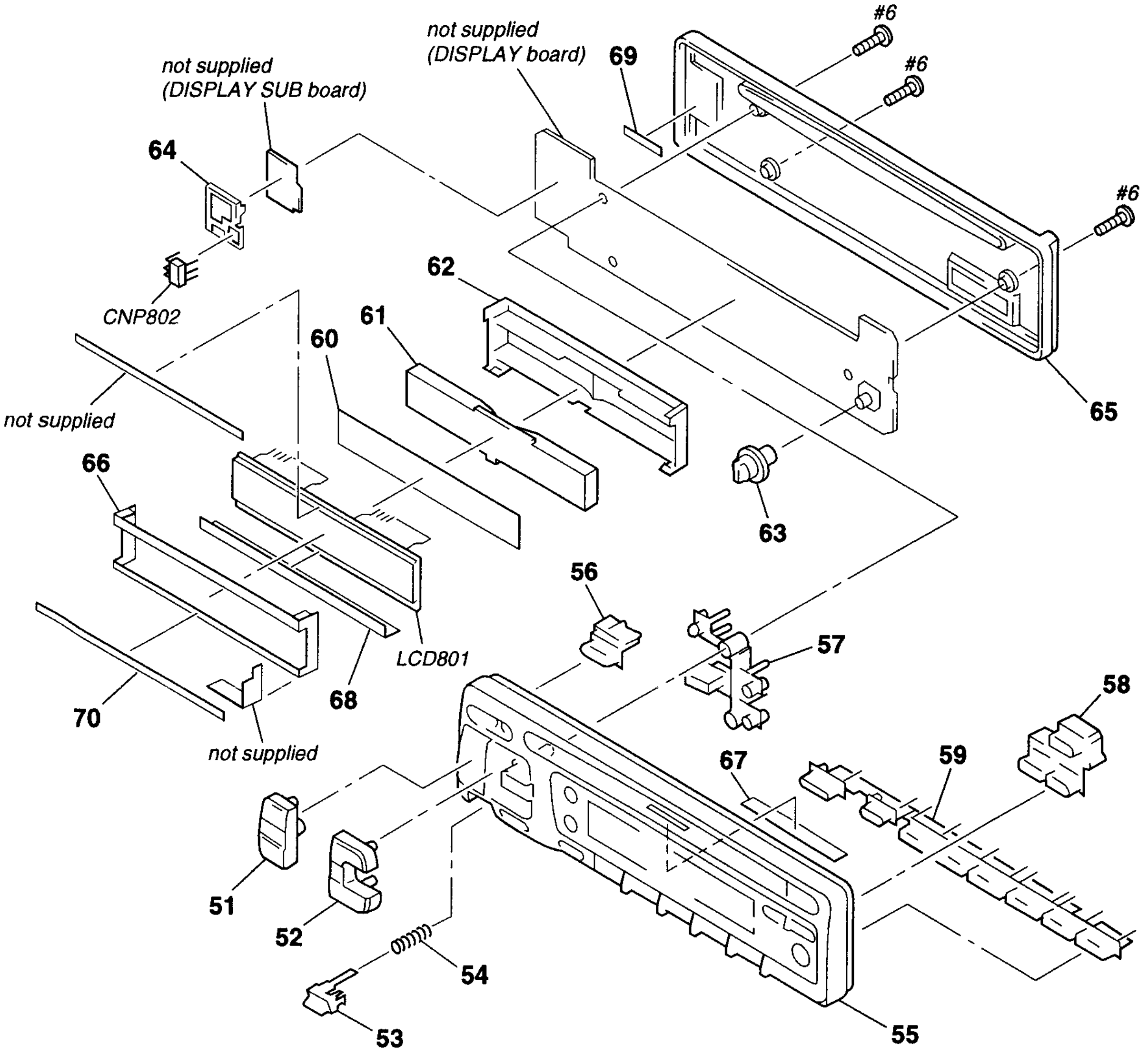
5-1. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
* 1	X-3372-357-1	COVER ASSY	
* 2	3-009-349-01	BRACKET (M/D)	
3	X-3367-636-1	LOCK ASSY	
4	X-3373-956-2	PANEL (1) ASSY, SUB	
5	3-915-923-01	SCREW, GROUND POINT	
* 6	A-3294-342-A	MAIN BOARD, COMPLETE (AEP,UK)	
* 6	A-3294-344-A	MAIN BOARD, COMPLETE (G)	
* 7	3-931-260-01	BRACKET (IC)	
* 8	3-009-844-01	HEAT SINK	
* 9	3-009-842-01	BRACKET (REG)	

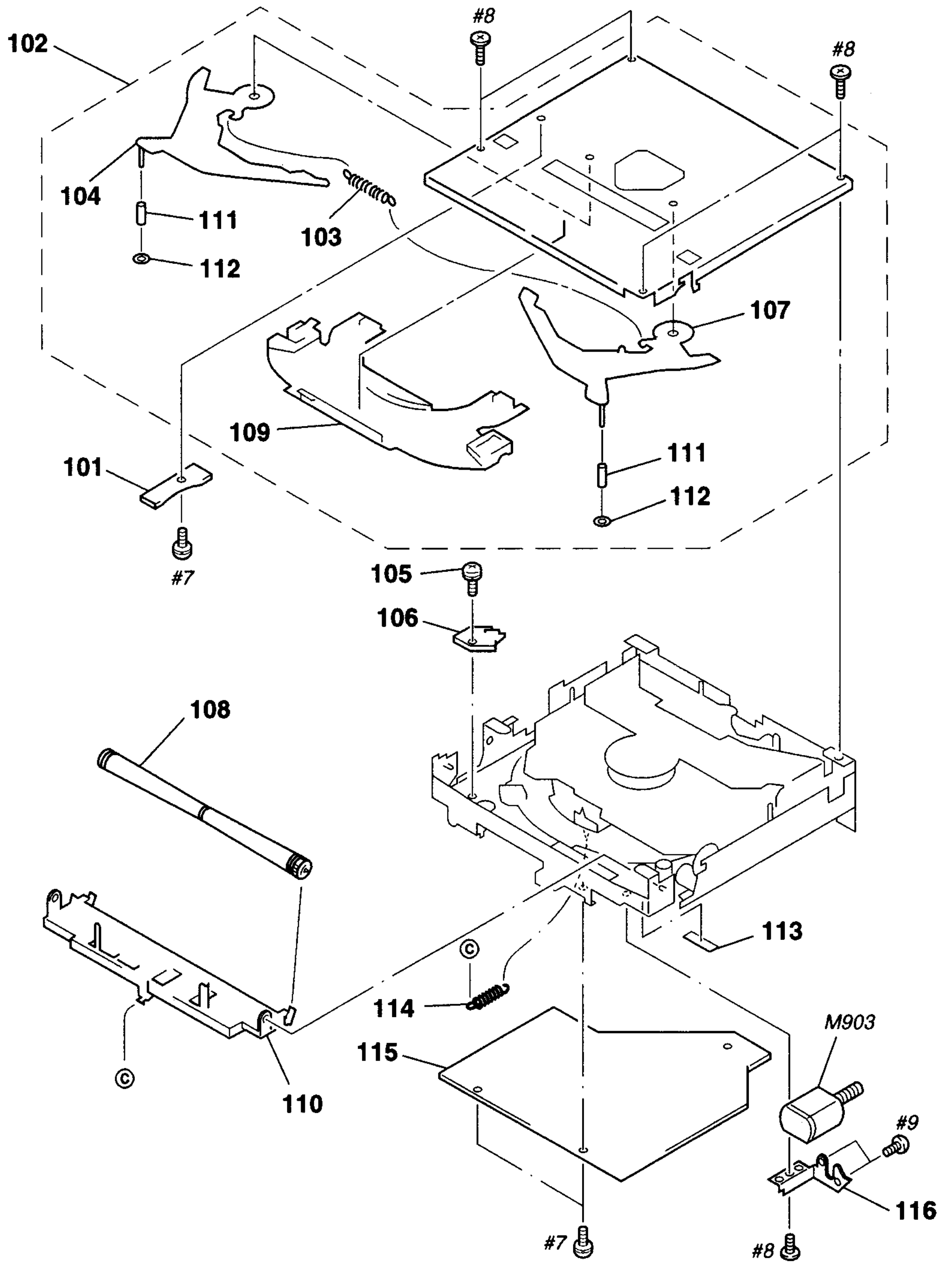
Ref. No.	Part No.	Description	Remark
* 10	3-009-840-21	CHASSIS (MAIN)	
11	1-776-527-11	CORD (WITH CONNECTOR) (ISO) (POWER)	
* 12	3-012-798-01	BRACKET (DRIVER)	
* 13	3-013-134-01	SHEET (DRIVER)	
14	3-937-650-01	PLATE (C), GROUND	
* 15	3-013-744-01	SHEET (INSULATING.A)	
* 16	3-014-067-01	SPACER (DRIVER)	
F901	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) 10A	
TU101	1-693-373-11	TUNER UNIT	

5-2. FRONT PANEL SECTION


#6
#6
#6
not supplied
(DISPLAY board)
69
not supplied
(DISPLAY SUB board)
64
CNP802
62
61
60
not supplied
66
65
63
56
57
58
LCD801
68
70
not supplied
67
59
51
52
54
53
55

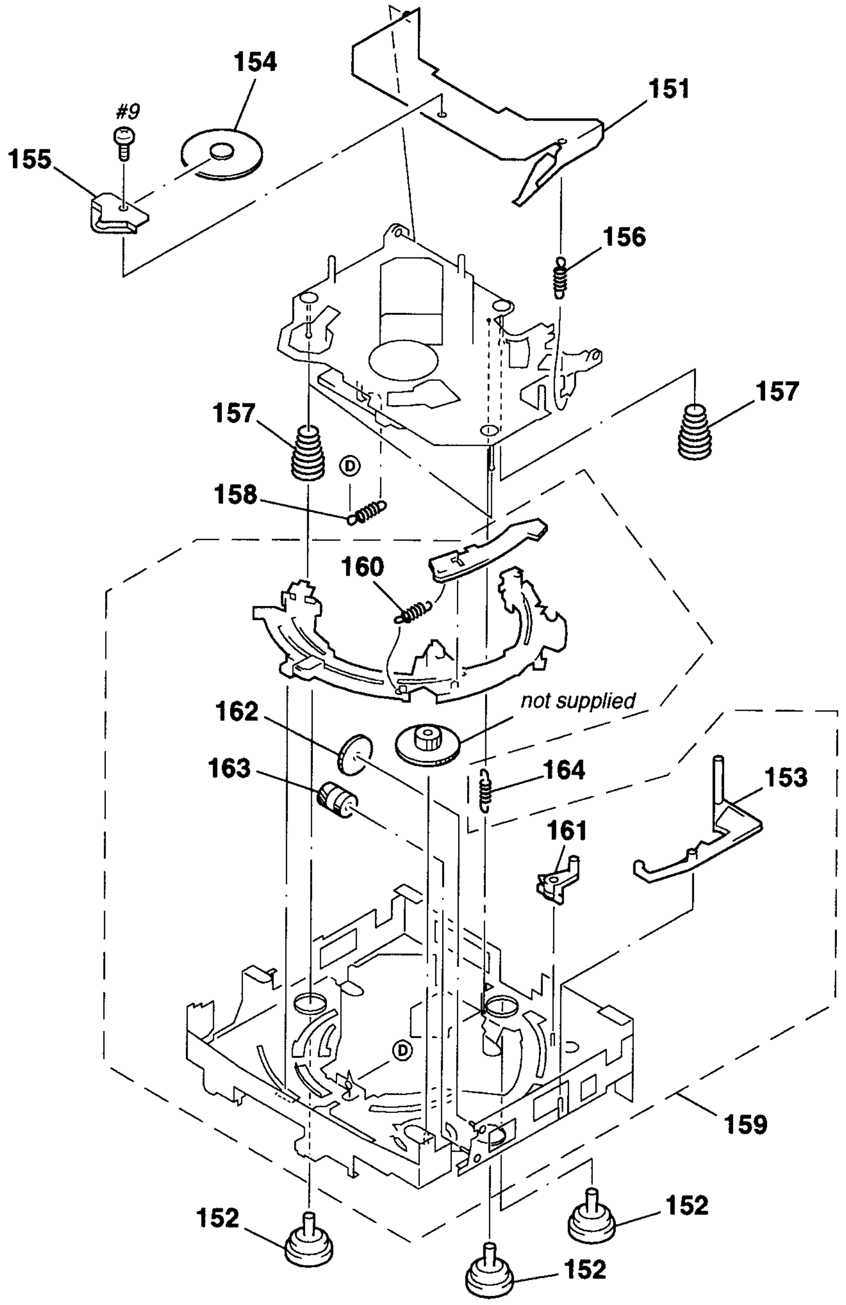
Ref. No.	Part No.	Description	Remark
51	3-009-376-01	BUTTON (SEEK/AMS)	
52	3-009-332-01	BUTTON (+/-)	
53	3-009-329-01	BUTTON (RELEASE)	
54	3-013-634-01	SPRING (RELEASE)	
55	X-3374-752-1	PANEL (S) ASSY, FRONT	
56	3-009-334-01	BUTTON (SOURCE)	
57	3-009-333-11	BUTTON (DSPL)	
58	3-009-331-11	BUTTON (EJECT CD)	
59	3-009-330-11	BUTTON (1-6)	
* 60	3-010-974-01	SHEET (DIFFUSION)	
* 61	3-009-335-02	PLATE (LCD), LIGHT GUIDE	
* 62	3-009-337-01	HOLDER (LCD)	
63	3-009-339-01	KNOB (D-BASS)	
* 64	3-009-371-01	BRACKET (PCB)	
65	3-009-355-01	PANEL, FRONT BACK	
* 66	3-014-202-23	BRACKET (LCD)	
* 67	3-013-243-01	SHEET (F)	
* 68	3-015-323-01	SHEET (PIN)	
* 69	3-014-601-01	SPACER (B)	
70	3-015-857-01	SHEET (BRACKET)	
* CNP802	1-779-129-11	PIN, CONNECTOR 3P	
LCD801	1-801-997-11	DISPLAY PANEL, LIQUID CRYSTAL	

5-3. CD MECHANISM SECTION (1)
(MG-363X-121)


102
#8
#8
104
111
103
112
107
109
111
101
112
#7
105
106
108
113
114
©
115
M903
©
110
#9
116
#7
#8

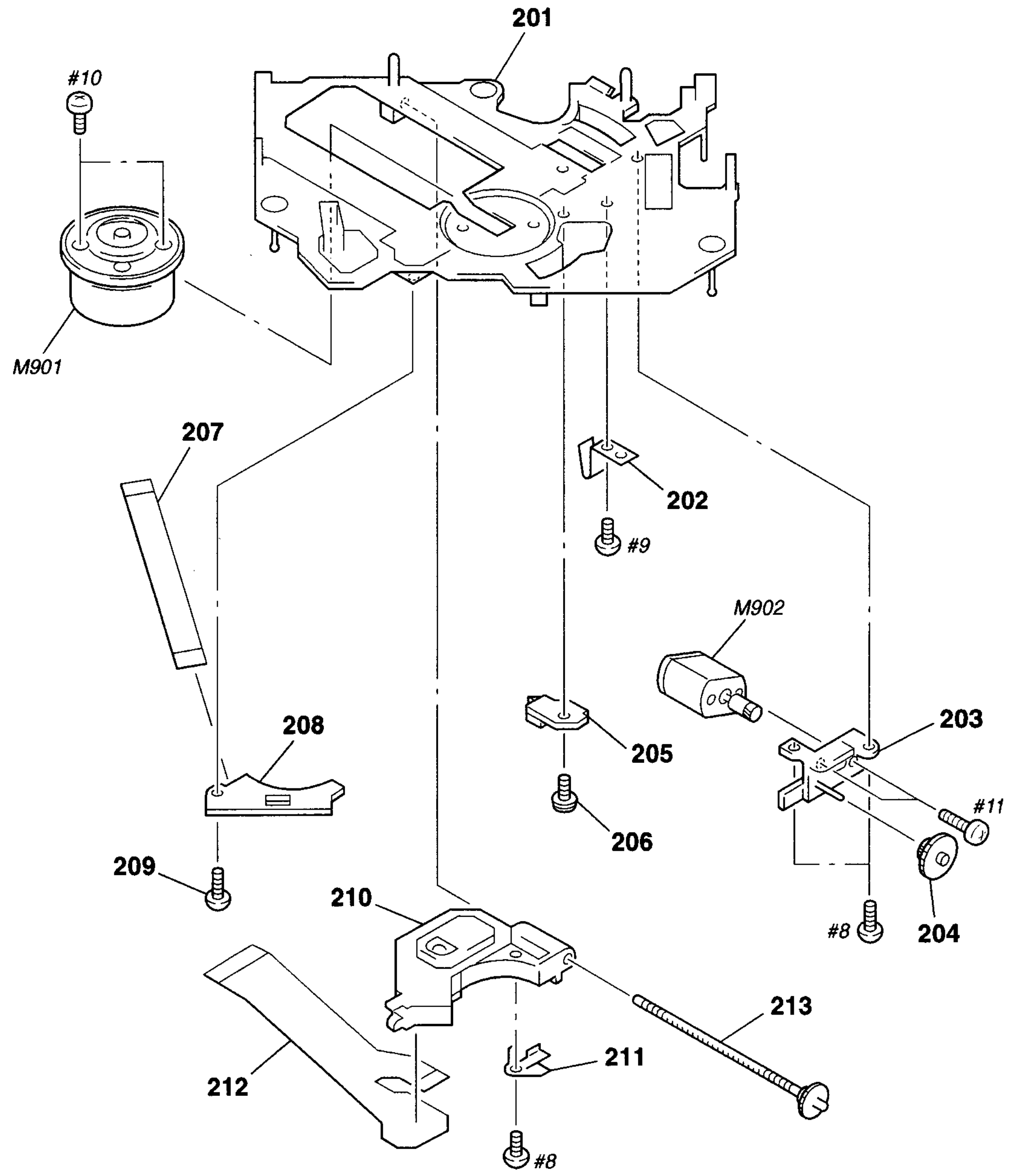
Ref. No.	Part No.	Description	Remark
* 101	1-659-836-11	DISC IN SW BOARD	
* 102	A-3291-816-B	CHASSIS (T) SUB ASSY	
103	3-931-909-01	SPRING (LR), TENSION	
104	X-3371-501-1	LEVER (L) ASSY	
105	3-338-737-01	SCREW (2X3), + PS	
* 106	1-659-837-11	LOAD SW BOARD	
107	X-3371-502-1	LEVER (R) ASSY	
108	A-3301-203-A	ROLLER ASSY	
109	3-931-908-01	GUIDE (DISC)	
110	3-931-902-03	ARM (ROLLER)	
111	3-936-756-01	ROLLER (D)	
112	3-321-393-01	WASHER, STOPPER	
* 113	3-939-139-01	SPACER	
114	3-931-916-01	SPRING (RA), TENSION	
* 115	A-3309-227-A	SERVO BOARD, COMPLETE	
* 116	3-007-530-01	BRACKET (MOTOR)	
M903	A-3291-676-A	MOTOR SUB ASSY, LOADING	

5-4. CD MECHANISM SECTION (2)
(MG-363X-121)


154
#9
151
155
156
157
157
158
Ⓓ
160
162
163
not supplied
164
153
161
Ⓓ
159
152
152
152

Ref. No.	Part No.	Description	Remark
151	3-931-893-01	ARM, CHUCKING	
152	3-931-897-01	DAMPER (T)	
153	3-931-879-02	LEVER (D)	
* 154	3-913-404-11	RETAINER (DISC)	
155	3-931-894-01	BRACKET (CP)	
156	3-931-895-01	SPRING (CH), TENSION	
157	3-931-898-01	SPRING (FL), COMPRESSION	
158	3-019-805-01	SPRING (KF1), TENSION	
* 159	A-3291-677-G	CHASSIS (M) ASSY	
160	3-931-883-01	SPRING (TR), TENSION	
161	3-931-881-01	LEVER (LOCK)	
162	3-931-882-02	GEAR (MDL)	
163	3-007-537-01	WHEEL (U), WORM	
164	3-019-806-01	SPRING (KR1), TENSION	

5-5. CD MECHANISM SECTION (3)
(MG-363X-121)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 201	X-3371-503-1	CHASSIS (OP) (O/S) ASSY	
202	3-931-829-01	SPRING (SL), PLATE	
203	X-3371-504-1	BASE (DRIVING) ASSY	
204	3-931-832-01	GEAR (SL MIDWAY)	
* 205	1-659-835-12	LIMIT SW BOARD	
206	3-338-737-01	SCREW (2X3), + PS	
207	1-659-880-11	MOTOR FLEXIBLE BOARD	
* 208	1-659-834-11	SUB BOARD	
209	3-909-607-01	SCREW	
⚠210	8-848-402-02	PICK-UP, OPTICAL KSS-520A/J2NP	
211	3-931-834-01	SPRING (FEED), PLATE	
212	1-659-881-11	PICK-UP FLEXIBLE BOARD	
213	A-3291-669-A	SHAFT (FEED) ASSY	
M901	X-3371-664-2	MOTOR ASSY (SPINDLE)	
M902	A-3291-674-A	MOTOR ASSY, SLED	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Abbreviation
  G : German model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example:
  uA.. : μA.. uPA.. : μPA..
  uPB.. : μPB.. uPC.. : μPC.. uPD.. : μPD..
- CAPACITORS
  uF : μF
- COILS
  uH : μH

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
*	1-659-836-11	DISC IN SW BOARD ***************	
		< SWITCH >	
SW1	1-572-288-11	SWITCH, PUSH (DISC IN)	
SW2	1-572-288-11	SWITCH, PUSH (SELF)	
************	************	************************	******
		DISPLAY BOARD *************	
*	3-009-335-02	PLATE (LCD), LIGHT GUIDE	
*	3-009-337-01	HOLDER (LCD)	
*	3-009-371-01	BRACKET (PCB)	
*	3-010-974-01	SHEET (DIFFUSION)	
*	3-014-202-23	BRACKET (LCD)	
*	3-015-323-01	SHEET (PIN)	
		< CAPACITOR >	
C801	1-164-222-11	CERAMIC CHIP 0.22uF	25V
C802	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
		< CONNECTOR >	
CNP801	1-764-423-11	PIN, CONNECTOR 12P	
* CNP802	1-779-129-11	PIN, CONNECTOR 3P	
		< DIODE >	
D801	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D802	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D803	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D804	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D805	8-719-033-13	LED CL-170Y-CD-T (SOURCE)	
D806	8-719-033-13	LED CL-170Y-CD-T (⏏)	
D809	8-719-033-13	LED CL-170Y-CD-T (+)	
D810	8-719-033-13	LED CL-170Y-CD-T (-)	
D811	8-719-033-13	LED CL-170Y-CD-T (1)	
D812	8-719-033-13	LED CL-170Y-CD-T (2)	
D813	8-719-033-13	LED CL-170Y-CD-T (3)	
D814	8-719-033-13	LED CL-170Y-CD-T (4)	
D815	8-719-033-13	LED CL-170Y-CD-T (AF/TA)	
D816	8-719-033-13	LED CL-170Y-CD-T (PTY)	
D817	8-719-033-13	LED CL-170Y-CD-T (6)	
D818	8-719-033-13	LED CL-170Y-CD-T (5)	
D819	8-719-033-13	LED CL-170Y-CD-T (SENS/BTM)	
D820	8-719-033-13	LED CL-170Y-CD-T (DSPL)	
D821	8-719-033-13	LED CL-170Y-CD-T (OFF)	
D822	8-719-033-13	LED CL-170Y-CD-T (MODE)	
D823	8-719-033-13	LED CL-170Y-CD-T (SEL)	
D824	8-719-033-13	LED CL-170Y-CD-T (ATT)	
D825	8-719-422-43	DIODE MA8051-H	
		< IC >	
IC801	8-759-365-90	IC LC75824W	
		< LIQUID CRYSTAL DISPLAY >	
LCD801	1-801-997-11	DISPLAY PANEL, LIQUID CRYSTAL	
		< PILOT LAMP >	
PL801	1-517-633-21	LAMP, PILOT	
PL802	1-517-633-21	LAMP, PILOT	
		< RESISTOR >	
R801	1-216-045-00	METAL CHIP 680 5%	1/10W
R802	1-216-045-00	METAL CHIP 680 5%	1/10W
R803	1-216-045-00	METAL CHIP 680 5%	1/10W
R804	1-216-049-11	RES, CHIP 1.0K (2012)	
R805	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R806	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R807	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R808	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R809	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R810	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R811	1-216-045-00	METAL CHIP 680 5%	1/10W
R812	1-216-045-00	METAL CHIP 680 5%	1/10W
R813	1-216-045-00	METAL CHIP 680 5%	1/10W
R814	1-216-049-11	RES, CHIP 1.0K (2012)	
R815	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R816	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R817	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R818	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R819	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R820	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
R821	1-216-081-00	METAL CHIP 22K 5%	1/10W
R822	1-216-041-00	METAL CHIP 470 5%	1/10W
R823	1-216-029-00	METAL CHIP 150 5%	1/10W
R824	1-216-029-00	METAL CHIP 150 5%	1/10W
R825	1-216-029-00	METAL CHIP 150 5%	1/10W
R826	1-216-037-00	METAL CHIP 330 5%	1/10W
R827	1-216-037-00	METAL CHIP 330 5%	1/10W

Ref. No.	Part No.	Description			Remark
R828	1-216-041-00	METAL CHIP	470	5%	1/10W
R829	1-216-049-11	RES, CHIP	1.0K	(2012)	
R830	1-216-049-11	RES, CHIP	1.0K	(2012)	
R831	1-216-049-11	RES, CHIP	1.0K	(2012)	
R832	1-216-113-00	METAL CHIP	470K	5%	1/10W
R833	1-216-049-11	RES, CHIP	1.0K	(2012)	
R834	1-216-049-11	RES, CHIP	1.0K	(2012)	
R835	1-216-049-11	RES, CHIP	1.0K	(2012)	
R836	1-216-049-11	RES, CHIP	1.0K	(2012)	
R837	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
		< SWITCH >			
SW801	1-572-704-31	SWITCH, KEY BOARD (⏏)			
SW802	1-572-704-31	SWITCH, KEY BOARD (PTY)			
SW803	1-572-704-31	SWITCH, KEY BOARD (AF/TA)			
SW804	1-572-704-31	SWITCH, KEY BOARD (SENS/BTM)			
SW805	1-572-704-31	SWITCH, KEY BOARD (1/INTRO)			
SW806	1-572-704-31	SWITCH, KEY BOARD (2/REPEAT)			
SW807	1-572-704-31	SWITCH, KEY BOARD (3/SHUF)			
SW808	1-572-704-31	SWITCH, KEY BOARD (4)			
SW809	1-762-357-11	SWITCH (5)			
SW810	1-572-704-31	SWITCH, KEY BOARD (6)			
SW811	1-572-704-31	SWITCH, KEY BOARD (OFF)			
SW812	1-572-704-31	SWITCH, KEY BOARD (SOURCE)			
SW813	1-572-704-31	SWITCH, KEY BOARD (MODE)			
SW815	1-572-704-31	SWITCH, KEY BOARD (- ⏮ ⏪ (SEEK/AMS))			
SW816	1-572-704-31	SWITCH, KEY BOARD (-)			
SW817	1-572-704-31	SWITCH, KEY BOARD (SEL)			
SW818	1-572-704-31	SWITCH, KEY BOARD (+)			
SW819	1-572-704-31	SWITCH, KEY BOARD (ATT)			
SW820	1-572-704-31	SWITCH, KEY BOARD (DSPL)			
SW821	1-762-937-11	SWITCH, ROTARY (D-BASS)			

****

Ref. No.	Part No.	Description			Remark
		DISPLAY SUB BOARD			
		*****************			
		< DIODE >			
D807	8-719-033-13	LED CL-170Y-CD-T (- ⏮ ⏪ (SEEK/AMS))			
D808	8-719-033-13	LED CL-170Y-CD-T (+ ⏭ ⏩ (SEEK/AMS))			
		< SWITCH >			
SW814	1-572-704-31	SWITCH, KEY BOARD (+ ⏭ ⏩ (SEEK/AMS))			

****

Ref. No.	Part No.	Description			Remark
*	1-659-835-12	LIMIT SW BOARD			
		***************			
		< SWITCH >			
SW3	1-572-688-11	SWITCH, PUSH (1 KEY) (LIMIT)			

****

Ref. No.	Part No.	Description			Remark
*	1-659-837-11	LOAD SW BOARD			
		***************			
		< SWITCH >			
SW4	1-572-288-11	SWITCH, PUSH (DOWN)			

****

Ref. No.	Part No.	Description			Remark
*	A-3294-342-A	MAIN BOARD, COMPLETE (AEP,UK)			
*	A-3294-344-A	MAIN BOARD, COMPLETE (G)			
		*********************			
*	3-009-842-01	BRACKET (REG)			
*	3-009-844-01	HEAT SINK			
*	3-931-260-01	BRACKET (IC)			
	7-685-793-09	SCREW +PTT 2.6X8 (S)			
		< CAPACITOR >			
C101	1-115-185-11	CERAMIC CHIP	0.033uF	10%	50V
C102	1-124-257-00	ELECT	2.2uF	20%	50V
C103	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C104	1-163-010-11	CERAMIC CHIP	0.0012uF	10%	50V
C105	1-124-589-11	ELECT	47uF	20%	16V
C106	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C107	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C108	1-163-010-11	CERAMIC CHIP	0.0012uF	10%	50V
C109	1-124-257-00	ELECT	2.2uF	20%	50V
C110	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C111	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C112	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C113	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C114	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C119	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C120	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C121	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C122	1-136-157-00	FILM	0.022uF	5%	50V
C123	1-136-173-00	FILM	0.47uF	5%	50V
C124	1-115-185-11	CERAMIC CHIP	0.033uF	10%	50V
C125	1-126-157-11	ELECT	10uF	20%	16V
C126	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C127	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C128	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C129	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C131	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C133	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C134	1-124-589-11	ELECT	47uF	20%	16V
C135	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C136	1-124-589-11	ELECT	47uF	20%	16V
C137	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C138	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C139	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C140	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C141	1-126-933-11	ELECT	100uF	20%	16V
C142	1-126-933-11	ELECT	100uF	20%	16V
C143	1-126-933-11	ELECT	100uF	20%	16V

MAIN

Ref. No.	Part No.	Description			Remark
C144	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C145	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C146	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C147	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C148	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C149	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C151	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C301	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C302	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C303	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C304	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C305	1-126-160-11	ELECT	1uF	20%	50V
C306	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C307	1-126-157-11	ELECT	10uF	20%	16V
C308	1-126-157-11	ELECT	10uF	20%	16V
C310	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C311	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C313	1-126-157-11	ELECT	10uF	20%	16V
C315	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C316	1-126-157-11	ELECT	10uF	20%	16V
C317	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C319	1-164-346-11	CERAMIC CHIP	1uF		16V
C320	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C322	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C323	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C324	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C325	1-126-934-11	ELECT	220uF	20%	16V
C326	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C327	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C329	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C331	1-164-346-11	CERAMIC CHIP	1uF		16V
C335	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C336	1-126-157-11	ELECT	10uF	20%	16V
C337	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C339	1-126-157-11	ELECT	10uF	20%	16V
C340	1-126-160-11	ELECT	1uF	20%	50V
C341	1-126-157-11	ELECT	10uF	20%	16V
C342	1-126-157-11	ELECT	10uF	20%	16V
C343	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C344	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C345	1-126-157-11	ELECT	10uF	20%	16V
C346	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C347	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C348	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C349	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C350	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C351	1-124-234-00	ELECT	22uF	20%	16V
C352	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C353	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C355	1-126-160-11	ELECT	1uF	20%	50V
C356	1-126-160-11	ELECT	1uF	20%	50V
C358	1-124-589-11	ELECT	47uF	20%	16V
C361	1-126-157-11	ELECT	10uF	20%	16V

Ref. No.	Part No.	Description			Remark
C370	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C501	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C502	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C503	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C504	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C505	1-124-589-11	ELECT	47uF	20%	16V
C507	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C701	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C702	1-124-584-00	ELECT	100uF	20%	10V
C703	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C704	1-126-933-11	ELECT	100uF	20%	16V
C705	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C706	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C707	1-124-234-00	ELECT	22uF	20%	16V
C708	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C709	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C710	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C711	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C712	1-124-584-00	ELECT	100uF	20%	10V
C713	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C714	1-163-012-00	CERAMIC CHIP	0.0018uF	10%	50V
C715	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C716	1-163-012-00	CERAMIC CHIP	0.0018uF	10%	50V
C717	1-124-584-00	ELECT	100uF	20%	10V
C718	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C719	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C720	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C721	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C723	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C901	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C902	1-126-157-11	ELECT	10uF	20%	16V
C903	1-126-157-11	ELECT	10uF	20%	16V
C904	1-126-157-11	ELECT	10uF	20%	16V
C905	1-126-933-11	ELECT	100uF	20%	16V
C906	1-126-157-11	ELECT	10uF	20%	16V
C907	1-125-710-11	DOUBLE LAYERS	0.1F		5.5V
C908	1-126-157-11	ELECT	10uF	20%	16V
C909	1-126-157-11	ELECT	10uF	20%	16V
C910	1-126-157-11	ELECT	10uF	20%	16V
C911	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C912	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C913	1-128-339-11	ELECT	2200uF	20%	16V
C915	1-126-768-11	ELECT	2200uF	20%	16V
C916	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C917	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
		< JACK >			
CNJ101	1-764-808-21	JACK (ANTENNA)			
CNJ301	1-764-697-11	JACK, PIN 4P (LINE OUT)			
CNJ901	1-566-822-41	JACK (REMOTE IN)			
		< CONNECTOR >			
CNJ701	1-764-617-12	PIN, CONNECTOR (PC BOARD) 30P			

Ref. No.	Part No.	Description	Remark
CNP501	1-764-422-11	PLUG, CONNECTOR 12P	
CNP901	1-774-701-11	PIN, CONNECTOR 16P	
		< DISCHARGE GAP >	
CP101	1-519-504-11	GAP, DISCHARGE	
		< DIODE >	
D102	8-719-040-04	DIODE MA721WK-(TX)	
D103	8-719-422-49	DIODE MA8056-L	
D110	8-719-404-49	DIODE MA111	
D301	8-719-970-02	DIODE 1SR139-400	
D302	8-719-970-02	DIODE 1SR139-400	
D303	8-719-970-02	DIODE 1SR139-400	
D304	8-719-970-02	DIODE 1SR139-400	
D305	8-719-970-02	DIODE 1SR139-400	
D306	8-719-970-02	DIODE 1SR139-400	
D307	8-719-970-02	DIODE 1SR139-400	
D308	8-719-970-02	DIODE 1SR139-400	
D309	8-719-421-24	DIODE MA8039-H	
D310	8-719-421-24	DIODE MA8039-H	
D311	8-719-404-49	DIODE MA111	
D313	8-719-914-43	DIODE DAN202K	
D501	8-719-423-10	DIODE MA8100-M-TX	
D502	8-719-109-97	DIODE RD6.8ES-B2	
D503	8-719-109-97	DIODE RD6.8ES-B2	
D504	8-719-109-97	DIODE RD6.8ES-B2	
D505	8-719-109-97	DIODE RD6.8ES-B2	
D506	8-719-109-97	DIODE RD6.8ES-B2	
D507	8-719-109-97	DIODE RD6.8ES-B2	
D508	8-719-109-97	DIODE RD6.8ES-B2	
D509	8-719-914-44	DIODE DAP202K	
D510	8-719-404-49	DIODE MA111	
D511	8-719-109-97	DIODE RD6.8ES-B2	
D701	8-719-422-49	DIODE MA8056-L	
D702	8-719-420-14	DIODE MA8082-M	
D901	8-719-977-12	DIODE DTZ6.8B	
D902	8-719-977-12	DIODE DTZ6.8B	
D903	8-719-914-44	DIODE DAP202K	
D905	8-719-970-02	DIODE 1SR139-400	
D906	8-719-970-02	DIODE 1SR139-400	
D907	8-719-049-38	DIODE 1N5404TU	
D908	8-719-109-97	DIODE RD6.8ES-B2	
D909	8-719-034-90	DIODE MA4160-M(QZ)	
D910	8-719-109-97	DIODE RD6.8ES-B2	
D911	8-719-977-12	DIODE DTZ6.8B	
		< FUSE >	
F901	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) 10A	
		< IC >	
IC101	8-759-448-88	IC TB2114F(EL)	
IC102	8-759-163-63	IC TDA7330BD-013TR	
IC302	8-759-490-48	IC HA13158	
IC303	8-759-487-82	IC LC75374E	
IC501	8-759-494-45	IC MN1886426SD	
IC701	8-759-473-70	IC SM5852FS-E2	
IC702	8-759-364-34	IC SM5877AM	
IC901	8-759-347-49	IC BA3918-V2	
IC902	8-759-503-60	IC S-80740AN-D4-S	
		< JUMPER RESISTOR >	
JR101	1-216-296-00	SHORT 0	
		< COIL >	
L101	1-410-513-11	INDUCTOR 22uH	
L102	1-410-513-11	INDUCTOR 22uH	
L103	1-410-513-11	INDUCTOR 22uH	
L104	1-410-983-31	INDUCTOR CHIP 0.15uH	
L501	1-410-513-11	INDUCTOR 22uH	
L701	1-410-513-11	INDUCTOR 22uH	
L702	1-410-513-11	INDUCTOR 22uH	
L703	1-410-513-11	INDUCTOR 22uH	
L901	1-411-823-21	COIL, CHOKE (TROIDAL)	
		< TERMINAL >	
* LUG1	1-537-738-21	TERMINAL, EARTH	
* LUG2	1-537-738-21	TERMINAL, EARTH	
		< TRANSISTOR >	
Q102	8-729-921-25	TRANSISTOR FMC2	
Q103	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q104	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q301	8-729-920-21	TRANSISTOR DTC314TKH04	
Q302	8-729-920-21	TRANSISTOR DTC314TKH04	
Q303	8-729-920-21	TRANSISTOR DTC314TKH04	
Q304	8-729-920-21	TRANSISTOR DTC314TKH04	
Q305	8-729-921-25	TRANSISTOR FMC2	
Q501	8-729-921-25	TRANSISTOR FMC2	
Q502	8-729-019-00	TRANSISTOR 2SD2394-G	
Q503	8-729-901-00	TRANSISTOR DTC124EK	
Q504	8-729-903-46	TRANSISTOR 2SB1132-P	
Q505	8-729-028-62	TRANSISTOR DTA115EKA-T146	
Q506	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q507	8-729-900-53	TRANSISTOR DTC114EK	
Q508	8-729-900-53	TRANSISTOR DTC114EK	
Q509	8-729-925-46	TRANSISTOR IBM11-T110	
Q701	8-729-920-85	TRANSISTOR 2SD1664-QR	
Q702	8-729-019-00	TRANSISTOR 2SD2394-G	
Q703	8-729-921-25	TRANSISTOR FMC2	
Q704	8-729-921-25	TRANSISTOR FMC2	
Q901	8-729-903-10	TRANSISTOR FMW1	
Q902	8-729-035-63	TRANSISTOR FMG9A-T148	

MAIN

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R101	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R102	1-216-097-00	RES, CHIP	100K	(2012)	
R103	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R105	1-216-081-00	METAL CHIP	22K	5%	1/10W
R106	1-216-222-00	RES, CHIP	10K	(3216)	
R107	1-216-081-00	METAL CHIP	22K	5%	1/10W
R108	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R109	1-216-073-00	METAL CHIP	10K	5%	1/10W
R110	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R111	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R112	1-216-075-00	METAL CHIP	12K	5%	1/10W
R113	1-216-077-00	METAL CHIP	15K	5%	1/10W
R114	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R115	1-216-210-00	RES, CHIP	3.3K	(3216)	
R116	1-216-073-00	METAL CHIP	10K	5%	1/10W
R117	1-216-073-00	METAL CHIP	10K	5%	1/10W
R118	1-216-049-11	RES, CHIP	1.0K	(2012)	
R119	1-216-119-00	METAL CHIP	820K	5%	1/10W
R120	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R121	1-216-041-00	METAL CHIP	470	5%	1/10W
R123	1-216-049-11	RES, CHIP	1.0K	(2012)	
R124	1-216-295-00	SHORT	0		
R128	1-216-025-00	RES, CHIP	100	(2012)	
R301	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R302	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R304	1-216-111-00	RES, CHIP	390K	(2012)	
R311	1-216-182-00	RES, CHIP	220	(3216)	
R312	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R313	1-216-117-00	METAL CHIP	680K	5%	1/10W
R314	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R315	1-216-089-00	RES, CHIP	47K	(2012)	
R318	1-216-117-00	METAL CHIP	680K	5%	1/10W
R320	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R321	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R322	1-216-089-00	RES, CHIP	47K	(2012)	
R324	1-216-182-00	RES, CHIP	220	(3216)	
R326	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R327	1-216-117-00	METAL CHIP	680K	5%	1/10W
R328	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R330	1-216-182-00	RES, CHIP	220	(3216)	
R331	1-216-089-00	RES, CHIP	47K	(2012)	
R332	1-216-117-00	METAL CHIP	680K	5%	1/10W
R334	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R337	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R340	1-216-089-00	RES, CHIP	47K	(2012)	
R341	1-216-182-00	RES, CHIP	220	(3216)	
R346	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R347	1-216-295-00	SHORT	0		
R350	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R351	1-216-049-11	RES, CHIP	1.0K	(2012)	
R501	1-216-049-11	RES, CHIP	1.0K	(2012)	
R502	1-216-049-11	RES, CHIP	1.0K	(2012)	
R503	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R504	1-216-049-11	RES, CHIP	1.0K	(2012)	
R505	1-216-049-11	RES, CHIP	1.0K	(2012)	
R506	1-216-073-00	METAL CHIP	10K	5%	1/10W
R507	1-216-073-00	METAL CHIP	10K	5%	1/10W
R508	1-208-806-11	RES, CHIP	10K		
R509	1-208-806-11	RES, CHIP	10K		
R510	1-208-806-11	RES, CHIP	10K		
R511	1-216-097-00	RES, CHIP	100K	(2012)	
R512	1-216-097-00	RES, CHIP	100K	(2012)	
R513	1-216-097-00	RES, CHIP	100K	(2012)	
R514	1-216-097-00	RES, CHIP	100K	(2012)	
R515	1-216-025-00	RES, CHIP	100	(2012)	
R516	1-216-025-00	RES, CHIP	100	(2012)	
R517	1-216-049-11	RES, CHIP	1.0K	(2012)	
R518	1-216-049-11	RES, CHIP	1.0K	(2012)	
R519	1-216-049-11	RES, CHIP	1.0K	(2012)	
R520	1-216-097-00	RES, CHIP	100K	(2012)	
R521	1-216-295-00	SHORT	0		
R522	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R525	1-216-295-00	SHORT	0 (AEP,UK)		
R527	1-216-097-00	RES, CHIP	100K	(2012) (G)	
R528	1-216-097-00	RES, CHIP	100K	(2012)	
R529	1-216-105-00	RES, CHIP	220K	(2012)	
R530	1-216-105-00	RES, CHIP	220K	(2012)	
R531	1-216-105-00	RES, CHIP	220K	(2012)	
R532	1-216-097-00	RES, CHIP	100K	(2012)	
R533	1-216-105-00	RES, CHIP	220K	(2012)	
R534	1-216-049-11	RES, CHIP	1.0K	(2012)	
R535	1-216-049-11	RES, CHIP	1.0K	(2012)	
R536	1-216-073-00	METAL CHIP	10K	5%	1/10W
R537	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R538	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R539	1-216-109-00	METAL CHIP	330K	5%	1/10W
R541	1-216-097-00	RES, CHIP	100K	(2012)	
R542	1-216-073-00	METAL CHIP	10K	5%	1/10W
R543	1-216-025-00	RES, CHIP	100	(2012)	
R551	1-216-105-00	RES, CHIP	220K	(2012)	
R552	1-216-105-00	RES, CHIP	220K	(2012)	
R553	1-216-105-00	RES, CHIP	220K	(2012)	
R554	1-216-105-00	RES, CHIP	220K	(2012)	
R555	1-216-097-00	RES, CHIP	100K	(2012)	
R701	1-216-049-11	RES, CHIP	1.0K	(2012)	
R702	1-216-049-11	RES, CHIP	1.0K	(2012)	
R703	1-216-049-11	RES, CHIP	1.0K	(2012)	
R704	1-216-025-00	RES, CHIP	100	(2012)	
R705	1-216-025-00	RES, CHIP	100	(2012)	
R706	1-216-025-00	RES, CHIP	100	(2012)	
R707	1-216-174-00	RES, CHIP	100	(3216)	
R708	1-216-174-00	RES, CHIP	100	(3216)	
R709	1-216-174-00	RES, CHIP	100	(3216)	
R710	1-216-037-00	METAL CHIP	330	5%	1/10W

Ref. No.	Part No.	Description			Remark
R711	1-216-001-00	METAL CHIP	10	5%	1/10W
R712	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R713	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R714	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R715	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R716	1-216-150-00	RES, CHIP	10	(3216)	
R717	1-216-073-00	METAL CHIP	10K	5%	1/10W
R718	1-216-073-00	METAL CHIP	10K	5%	1/10W
R720	1-216-113-00	METAL CHIP	470K	5%	1/10W
R721	1-216-121-00	RES, CHIP	1.0M	(2012)	
R723	1-216-295-00	SHORT	0		
R901	1-216-025-00	RES, CHIP	100	(2012)	
R902	1-216-025-00	RES, CHIP	100	(2012)	
R903	1-216-097-00	RES, CHIP	100K	(2012)	
R904	1-216-073-00	METAL CHIP	10K	5%	1/10W
R905	1-216-081-00	METAL CHIP	22K	5%	1/10W
R906	1-216-105-00	RES, CHIP	220K	(2012)	
R907	1-216-089-00	RES, CHIP	47K	(2012)	
R908	1-216-073-00	METAL CHIP	10K	5%	1/10W
R909	1-216-081-00	METAL CHIP	22K	5%	1/10W
R910	1-216-073-00	METAL CHIP	10K	5%	1/10W
R911	1-216-105-00	RES, CHIP	220K	(2012)	
R912	1-216-295-00	SHORT	0		
		< VARIABLE RESISTOR >			
RV101	1-238-605-31	RES, ADJ, CARBON 470K			
		< SWITCH >			
S501	1-571-478-11	SWITCH, SLIDE (POWER SELECT)			
S502	1-692-431-21	SWITCH, TACTILE (RESET)			
		< TUNER >			
TU101	1-693-373-11	TUNER UNIT			
		< VIBRATOR >			
X101	1-567-848-11	VIBRATOR, CRYSTAL (7.2MHz)			
X102	1-579-242-41	VIBRATOR, CRYSTAL (4.332MHz)			
X501	1-567-098-41	VIBRATOR, CRYSTAL (32.768kHz)			
X502	1-579-125-11	VIBRATOR, CERAMIC (8MHz)			
X701	1-760-793-11	VIBRATOR, CERAMIC (16.9344MHz)			

****

Ref. No.	Part No.	Description			Remark
*	A-3309-227-A	SERVO BOARD, COMPLETE *********************			
		< CAPACITOR >			
C1	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C2	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C3	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C4	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C5	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C6	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C7	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C9	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C10	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C11	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C12	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C13	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C14	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C15	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C16	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C17	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C18	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C19	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C20	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C21	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C22	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C23	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C24	1-163-259-11	CERAMIC CHIP	220PF	5%	50V
C25	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C26	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C27	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C28	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C29	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C30	1-126-603-11	ELECT CHIP	4.7uF	20%	35V
C31	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C32	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C33	1-124-779-00	ELECT CHIP	10uF	20%	16V
C34	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C35	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C36	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C37	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C38	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C39	1-126-204-11	ELECT CHIP	47uF	20%	16V
C40	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
		< CONNECTOR >			
CN1	1-764-616-12	HOUSING, CONNECTOR (PC BOARD) 30P			
CN2	1-565-728-11	CONNECTOR, FPC 17P			
CN3	1-770-347-21	CONNECTOR, FPC 6P			
		< IC >			
IC1	8-752-372-94	IC CXD2507AQ			
IC2	8-752-074-34	IC CXA1782BQ			
IC3	8-759-354-16	IC BA6796FP-T1			
		< JUMPER RESISTOR >			
JR1	1-216-296-00	SHORT	0		
JR2	1-216-296-00	SHORT	0		
JR3	1-216-296-00	SHORT	0		
JR4	1-216-296-00	SHORT	0		
JR5	1-216-296-00	SHORT	0		
JR6	1-216-296-00	SHORT	0		
JR7	1-216-296-00	SHORT	0		
JR8	1-216-296-00	SHORT	0		
JR9	1-216-296-00	SHORT	0		

SERVO

Ref. No.	Part No.	Description			Remark
JR10	1-216-296-00	SHORT	0		
JR11	1-216-296-00	SHORT	0		
JR12	1-216-296-00	SHORT	0		
JR13	1-216-296-00	SHORT	0		
JR14	1-216-296-00	SHORT	0		
JR15	1-216-296-00	SHORT	0		
JR16	1-216-296-00	SHORT	0		
JR17	1-216-296-00	SHORT	0		
JR18	1-216-296-00	SHORT	0		
JR19	1-216-296-00	SHORT	0		
JR20	1-216-296-00	SHORT	0		
JR21	1-216-296-00	SHORT	0		
JR22	1-216-296-00	SHORT	0		
JR23	1-216-296-00	SHORT	0		
JR24	1-216-296-00	SHORT	0		
JR25	1-216-296-00	SHORT	0		
JR26	1-216-296-00	SHORT	0		
JR27	1-216-296-00	SHORT	0		
JR28	1-216-296-00	SHORT	0		
JR29	1-216-296-00	SHORT	0		
JR30	1-216-296-00	SHORT	0		
JR31	1-216-296-00	SHORT	0		
JR32	1-216-296-00	SHORT	0		
JR33	1-216-296-00	SHORT	0		
JR34	1-216-296-00	SHORT	0		
JR35	1-216-296-00	SHORT	0		
JR36	1-216-296-00	SHORT	0		
JR37	1-216-296-00	SHORT	0		
JR38	1-216-296-00	SHORT	0		
JR39	1-216-296-00	SHORT	0		
JR40	1-216-296-00	SHORT	0		
JR41	1-216-296-00	SHORT	0		
JR43	1-216-296-00	SHORT	0		
JR44	1-216-296-00	SHORT	0		
JR45	1-216-296-00	SHORT	0		
JR46	1-216-296-00	SHORT	0		
		< COIL >			
L1	1-412-058-11	INDUCTOR CHIP	10uH		
L2	1-412-058-11	INDUCTOR CHIP	10uH		
L3	1-412-058-11	INDUCTOR CHIP	10uH		
		< TRANSISTOR >			
Q1	8-729-904-60	TRANSISTOR	DTB113ZK		
Q2	8-729-904-86	TRANSISTOR	2SB1197K-Q		
		< RESISTOR >			
R1	1-216-073-00	METAL CHIP	10K	5%	1/10W
R2	1-216-097-00	RES, CHIP	100K	(2012)	
R3	1-216-121-00	RES, CHIP	1.0M	(2012)	
R4	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R5	1-216-061-00	METAL CHIP	3.3K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R6	1-216-073-00	METAL CHIP	10K	5%	1/10W
R7	1-216-009-00	METAL CHIP	22	5%	1/10W
R8	1-216-119-00	METAL CHIP	820K	5%	1/10W
R9	1-216-119-00	METAL CHIP	820K	5%	1/10W
R10	1-216-073-00	METAL CHIP	10K	5%	1/10W
R11	1-216-073-00	METAL CHIP	10K	5%	1/10W
R14	1-216-085-00	METAL CHIP	33K	5%	1/10W
R15	1-216-085-00	METAL CHIP	33K	5%	1/10W
R16	1-216-077-00	METAL CHIP	15K	5%	1/10W
R17	1-216-081-00	METAL CHIP	22K	5%	1/10W
R19	1-216-079-00	METAL CHIP	18K	5%	1/10W
R20	1-216-105-00	RES, CHIP	220K	(2012)	
R21	1-216-105-00	RES, CHIP	220K	(2012)	
R22	1-216-085-00	METAL CHIP	33K	5%	1/10W
R23	1-216-121-00	RES, CHIP	1.0M	(2012)	
R24	1-216-073-00	METAL CHIP	10K	5%	1/10W
R27	1-216-295-00	SHORT	0		
R28	1-216-101-00	METAL CHIP	150K	5%	1/10W
R29	1-216-097-00	RES, CHIP	100K	(2012)	
R30	1-216-097-00	RES, CHIP	100K	(2012)	
R31	1-216-081-00	METAL CHIP	22K	5%	1/10W
R32	1-216-109-00	METAL CHIP	330K	5%	1/10W
R33	1-216-105-00	RES, CHIP	220K	(2012)	
R34	1-216-009-00	METAL CHIP	22	5%	1/10W
R35	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R36	1-216-097-00	RES, CHIP	100K	(2012)	
R37	1-216-117-00	METAL CHIP	680K	5%	1/10W
R38	1-216-109-00	METAL CHIP	330K	5%	1/10W
R39	1-216-101-00	METAL CHIP	150K	5%	1/10W
R40	1-216-114-00	RES, CHIP	510K	(2012)	
R41	1-216-093-00	METAL CHIP	68K	5%	1/10W
R42	1-216-103-00	METAL CHIP	180K	5%	1/10W
R43	1-216-097-00	RES, CHIP	100K	(2012)	
R44	1-216-085-00	METAL CHIP	33K	5%	1/10W
R45	1-216-081-00	METAL CHIP	22K	5%	1/10W
R46	1-216-097-00	RES, CHIP	100K	(2012)	
R47	1-216-105-00	RES, CHIP	220K	(2012)	
R48	1-216-073-00	METAL CHIP	10K	5%	1/10W
R49	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R50	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R51	1-216-295-00	SHORT	0		
		< VARIABLE RESISTOR >			
RV1	1-238-091-11	RES, ADJ, CERMET	22K		
RV4	1-238-091-11	RES, ADJ, CERMET	22K		

****

Ref. No.	Part No.	Description	Remark
*	1-659-834-11	SUB BOARD **********	
		< CONNECTOR >	
CN1	1-770-347-21	CONNECTOR, FPC 6P	

****

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS ***************	
11	1-776-527-11	CORD (WITH CONNECTOR) (ISO) (POWER)	
207	1-659-880-11	MOTOR FLEXIBLE BOARD	
⚠210	8-848-402-02	PICK-UP, OPTICAL KSS-520A/J2NP	
212	1-659-881-11	PICK-UP FLEXIBLE BOARD	
F901	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) 10A	
M901	X-3371-664-2	MOTOR ASSY (SPINDLE)	
M902	A-3291-674-A	MOTOR ASSY, SLED	
M903	A-3291-676-A	MOTOR SUB ASSY, LOADING	

****

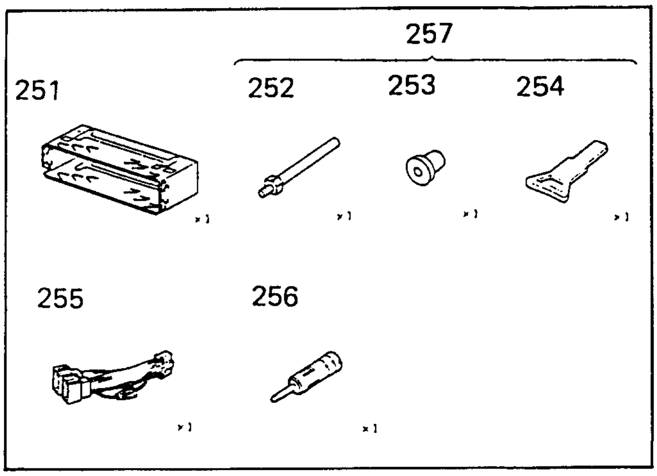
Ref. No.	Part No.	Description	Remark
	ACCESSORIES & PACKING MATERIALS *********************************		
	3-861-518-11	MANUAL, INSTRUCTION (ENGLISH,SPANISH, PORTUGUESE,SWEDISH) (AEP,UK)	
	3-861-518-21	MANUAL, INSTRUCTION (FRENCH,GERMAN, DUTCH,ITALIAN) (AEP)	
	3-861-518-31	MANUAL, INSTRUCTION (GERMAN) (G)	
	3-861-519-11	MANUAL, INSTRUCTION, INSTALL (ENGLISH, SPANISH,PORTUGUESE,SWEDISH) (AEP,UK)	
	3-861-519-21	MANUAL, INSTRUCTION, INSTALL (FRENCH, GERMAN,DUTCH,ITALIAN) (AEP,G)	
	X-3373-412-1	CASE (PANEL) ASSY	

****

Ref. No.	Part No.	Description	Remark
		************** HARDWARE LIST **************	
#1	7-628-253-15	SCREW +PS 2X5	
#2	7-685-791-09	SCREW +PTT 2.6X5 (S)	
#3	7-685-792-09	SCREW +PTT 2.6X6 (S)	
#4	7-685-793-09	SCREW +PTT 2.6X8 (S)	
#5	7-621-772-10	SCREW +B 2X4	
#6	7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT	
#7	7-628-253-00	SCREW +PS 2X4	
#8	7-627-553-37	SCREW, PRECISION +P 2X3 TYPE 3	
#9	7-627-553-17	SCREW, PRECISION +P 2X2 TYPE 3	
#10	7-627-000-00	SCREW, PRECISION +P 1.7X2.2 TYPE 3	
#11	7-627-850-28	SCREW, PRECISION +P 1.4X3	

****

Ref. No.	Part No.	Description	Remark
	PARTS FOR INSTALLATION AND CONNECTIONS ***************************************		
251	3-916-161-31	FRAME ASSY	
252	3-386-828-01	SCREW, FITTING	
253	3-349-410-01	BUSHING	
254	3-388-078-01	KEY	
255	1-776-527-11	CORD (WITH CONNECTOR) (ISO) (POWER)	
256	1-465-459-21	ADAPTOR, ANTENNA	
257	X-3370-077-1	SCREW ASSY (AE.KEY), FITTING	



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.